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MEDICAL LITERATURE OF THE PERIOD.

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BY

JOHN B. HAMILTON, M.D., LL.D.

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ADDRESS.

GLAUCOMA FOLLOWING TRAUMATISM, UNASSOCIATED WITH DISLOCATION OF THE LENS.

Chairman's Address delivered in the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY G. E. DE SCHWEINITZ, M.D.
PHILADELPHIA.

In the general rejoicing of the American Medical Association on its fiftieth anniversary the Ophthalmic Section heartily joins, and all the more heartily because by reason of its own clean record, steady development and fair achievements, it has become a model Section of this notable gathering of American physicians and surgeons. To have been chosen to preside over its deliberations is a satisfaction for which I return my sincere thanks; to become the successor of the men who have labored so hard and so productively for the advancement of this Section and for the credit of ophthalmology is an honor I highly appreciate; to welcome you, my *confrères*, perhaps I may be permitted to say, my friends, on this occasion and on all other occasions when you shall gladden us with your presence, is a pleasure I greatly enjoy.

The Chairman's address was at one time, by the organic law of the Association, supposed to reflect the progress of ophthalmology during the preceding year. Happily, this custom or law, as Dr. Jackson has well observed, has become obsolete, and if the Chairman has done more than make a few suggestions as to the general conduct of the Section, he has contributed one of the scientific papers of the session. I am therefore constrained to follow this latter custom and ask your attention to the subject of high eyeball-tension, or acute glaucoma, following blows upon the bulbus, when such an injury is unassociated with dislocation of the lens. To introduce the topic the following case may be recorded:

Joseph H., aged 46 years, born in Germany, married, saloon keeper, consulted me Feb. 5, 1894, on account of an injury to his left eye.

History.—While chopping wood, a few hours previous to his visit, he was struck on the left eye with a large piece of wood. A medical student dressed his wounds and brought him immediately to my office.

Examination.—There was a cut upon the left upper eyelid and another upon the neighboring facial area. The conjunctiva was somewhat chemotic and slightly lacerated on its bulbar expansion at the outer side of the eyeball. Under the influence of a mydriatic the pupil dilated irregularly, *i. e.*, only upward and inward; downward and outward the iritic fibers were paretic and refused to respond to the drug. The media were clear; the lens was in place; the optic disc was oval, its long axis being 120 degrees; the edges were somewhat hazy and the veins full. The refraction was a low myopic astigmatism and V. equaled, without correcting glass, $^{6}/_{18}$. The optic disc of the right eye was an oval, with its axis at 30 degrees; the scleral ring was visible all around and broadened below; the edges of the papilla were hazy. The refraction, like that of the other eye, was a low myopic astigmatism and V., without a correcting lens, equaled $^{6}/_{18}$.

The wounds on the face and eyelid were stitched and a proper dressing was applied.

February 7, 1894.—Stitches and bandage were removed. The conjunctiva was still somewhat edematous; a boric acid lotion was ordered.

February 12, 1894.—V. of O. S. $^{6}/_{18}$. The pupil had regained its normal round shape, but the light reaction was somewhat sluggish. The fundus was unchanged.

February 27, 1894.—Patient was not seen in spite of positive directions, until the present date. He complained of dull vision and some lachrymation, but denied the presence of pain. V. equaled $^{6}/_{15}$, with the head tipped slightly upward. Field of vision was concentrically contracted. The nerve head was obscured by a grayish swelling, the apex of which was + 2 D., the macula being not far from Em, or slightly M. The veins were enormously distended and the smaller branches very tortuous; the arteries were about normal in size and were quickly pulsating on the disc. Tn. + ?. The light reaction of the pupil was sluggish; the anterior chamber was not shallowed. The patient was sent to Dr. H. A. Hare for general examination, who reported as follows: "There is no enlargement of liver or spleen; if anything, the area of hepatic dulness is somewhat smaller than normal. The apex beat of the heart is displaced downward and to the right, and is quite forcible. After exercising there is an inconstant mitral regurgitant murmur. The tricuspid valves also seem as if they might be suspected of slight regurgitation. The aortic valves are normal, but the second sound is not quite so sharp as in the average individual. The chest shows no bulging in expansion which would indicate thoracic aneurysm. The blood vessels seem to be fairly normal; a condition of high tension does not exist. The urine is normal." Leeches to the temple, a calomel purge, iodid of potassium and, locally eserin, were ordered.

March 12, 1894.—V. equaled $^{6}/_{15}$; field of vision somewhat enlarged. The margins of the disc were clearer; there was still quick arterial and venous pulse. Tn. + 1.

March 22, 1894.—V. equaled $^{6}/_{15}$ —. The arterial pulse was unchanged; the disc margins were clearer and the beginning formation of the cup was visible. The pupil reacted sluggishly to light. Treatment continued.

April 3, 1894.—V. equaled $^{6}/_{22.5}$. Media were clear; the arterial pulse continued and the cup was still more marked, although not quite complete. Only medicinal treatment was accepted, and for the iodid of potassium strychnin was substituted. The local treatment remained the same.

May 25, 1894.—The patient was not seen again for nearly two months. He had long since discontinued his internal and local medication. V. equaled O, Tn. + 1. The optic disc was atrophic and deeply cupped (bottom of cup − 5 D., edges of disc − 1.5 D.). The vessels were crowded to the nasal side and there was a strong arterial pulse; a halo was beginning to appear, most marked upon the temporal side. The pupil was fixed. Upward and outward in the ciliary region a bluish staphyloma of moderate size had appeared.

The patient was seen once more and the ocular conditions remained unchanged.

Briefly, then, the phenomena in this case were the following: Contusion of the left eyeball, with slight laceration of the conjunctiva, but without dislocation of the lens: between the seventh and twenty-second day after the injury, the development of optic neuritis, quick arterial pulsation and slight increase in intra-ocular tension, with marked depreciation of central vision and contraction of the field of vision; at first, improvement under the influence of eserin, associated with gradual subsidence of the neuritis, the improvement lasting about two weeks; later, at the end of three weeks, renewed depreciation of vision associated with the formation of a cup in the nerve head; gradual increase in the depth of the cup and the atrophy of the nerve until (treatment having been entirely disregarded) vision was reduced to *nil;* throughout the entire course of the affection moderate increased tension, + 1, and quick arterial pulse, which persisted even when the atrophy was complete; nearly three months after the injury, the development up and out, of a ciliary staphyloma.

Remarks.—Glaucoma following an injury may be typically secondary; or it may present the clinical signs and pathologic lesions of the primary variety of the disease.

To the first of these classes, with which we are not now concerned, belong the well-known examples of glaucoma secondary to perforating wounds of the cornea, forward and lateral dislocation of the lens, puncture and swelling of the crystalline body, etc. To the second class belong several varieties:

1. Cases of glaucoma following trifling injuries, *e. g.*, a slight burn or abrasion of the cornea, or even the lodgment of a foreign body on its surface.

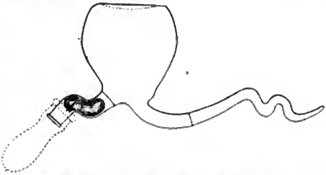
Under these circumstances, as Priestley Smith[1] maintains, it is fair "to assume that the eye was predisposed to glaucoma." He further believes that "in these traumatic cases the origin of the outbreak is probably an active hyperemia rather than a passive congestion and there is a special tendency to inflammatory exudation, but the direct cause of the high tension appears to be the same as in the more typical cases." To this category would belong such a case as that reported by C. J. Lundy,[2] in which an outbreak of this disease, resulting in loss of the eye, followed the sting of a bee on the conjunctiva.

2. Cases of glaucoma following contusion of the eye, either without discoverable lesion or else without marked changes which would account for the increased tension.

Glaucomas of this character have usually followed a blow upon the eye, for example, from the cork of a bottle or from a chip of wood. A case in point is one reported by W. A. Brailey[3]. A boy aged 14 years eight days before admission to the hospital received a blow on the right eye from the cork of a beer bottle. The pupil of the right eye was fully dilated and fixed and the tension increased to + 2. Vision was 6/60; the disc a little misty. The patient was treated by the instillation of eserin and gradually the disease subsided, vision and tension improving for a time, when the eserin was omitted and the pupil again dilated and tension returned. According to the reporter there was no obvious change in the eye to account for the tension, except the condition of the pupil. When this was contracted by means of eserin the tension fell, possibly because the drawing of the iris at the periphery of the anterior chamber caused a stretching of the fibers between the spaces of Fontana, permitting a readier access of the fluids of the anterior chamber to the canal of Schlemm.

Not quite so clear a case is one reported by Ferber[4]. A patient, whose age is not given, received a contusion of the eye without noteworthy injury of the bulbus and without dislocation of the lens. A small retinal hemorrhage and exudate were also visible. As these were considered too insignificant to be regarded as the etiologic factors in the production of the glaucoma which followed this contusion, the author refers to a neuropathic element, but suggests as possible and, as it seems to me, much more likely that the contusion closed the pathways of the intra-ocular currents.

A very instructive case touching on this question of the etiology of glaucoma after blows upon the bulbus of the type we are now considering, has been reported by Knapp[5]. A patient 29 years old was struck on the eye with a cane, and presented himself for treatment with an obliterated anterior chamber, clear media, diminished tension and a myopia of 1/7 which, when corrected, gave him normal vision. After bandaging and rest there was restoration of the anterior chamber, and with its restoration an attack of acute glaucoma, which was cured by the instillation of eserin. Knapp explains this case as follows: The injury probably produced a perforation of the corneo-scleral wall at the periphery of the anterior chamber, which escaped his notice. Now, although the sinus of the anterior chamber was obliterated by the advancement of the lens which crowded the iris against the posterior face of the cornea, glaucoma did not develop until the iris reassumed its natural position, because so long as it was pressed forward and the anterior chamber was obliterated, the aqueous humor was leaking from the insignificant corneo-scleral perforation. With the closure of this perforation and the restoration of the anterior chamber, the aqueous could no longer find an outlet through Fontana's spaces, which during the time of pressure of the iris against them, had probably become impervious. In commenting on this case, which has just been quoted from Dr. Knapp's description, this author points to the analogy between this type of glaucoma and that which follows the closure of a corneal fistula, inasmuch as the same explanation is applicable to each.



3. Cases of glaucoma following injury to the eye, either with manifest lesions in the anterior portion of the bulbus, or with ophthalmoscopic changes, retinal hemorrhage, neuritis and choroiditis.

Fortunately a certain number of eyes have been carefully examined after traumatic glaucoma from the microscopic standpoint and give an explanation of the phenomena of increased tension. Priestley Smith[6] enucleated the right eye of a woman aged 57 years, which was in a condition of acute absolute glaucoma as the result of a blow from a cork escaping from a soda-water bottle, the accident having occurred nine weeks previous to her examination. After giving the microscopic examination of the eyeball in detail, this author sums up his case as follows: "The iris had been manifestly driven forward and its periphery pressed against the cornea by the processes so as to close the angle of the anterior chamber and cut off all access to Schlemm's canal. It is likely that the blow, the violent effect of which upon the ciliary structures was indicated by a partial detachment of the iris, had caused a vasomotor paralysis and hence a congestion and swelling of the processes, and that this swelling had closed the outlet of the anterior chamber and established the glaucoma."

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[1] On the "Pathology and Treatment of Glaucoma," London, 1891, page 126.

[2] American Journal of Ophthalmology, St. Louis, 1886, iii, 122.

[3] Trans. Opth. Soc. U. K., London, 1884, iv, 113-115.

[4] Jahresbericht f. Ophthalmologie, xix, p. 377. I have not been able to consult the original reference.

[5] Archives of Ophthalmology, New York, 1881, x, p. 451.

[6] The Ophthalmic Review, London, 1882, i, 273-279.

In other words, in this case the pathologic changes were similar to those which are found in acute primary glaucoma.

Garnier[7] saw in a 14 year old boy, after a blow on the eye, an acute elevation of the intra-ocular pressure, and after ten days the development of a scleral staphyloma. The ball was enucleated and microscopically there were found fluidity of the vitreous; hyperemia of the iris; widening of the veins of the canal of Schlemm; rupture of the zone of Zinn downward and inward, although the lens, which was clear, was not luxated; hyperemia of the retina; blood extravasations between the nerve-fibers of the papilla and the retina; widening of the larger vessels of the ciliary body and corresponding to the rupture of the zone of Zinn, a tear in the circular portion of the ciliary muscle, in the neighborhood of which the arterioles were thrombosed. The choroid and suprachoroid were greatly swollen and edematous and the pigment macerated, all spaces in the sclera and all perivascular lymph spaces being choked with pigment cells. To this condition of the choroid and its consequences Garnier attributes the elevation of intra-ocular tension.

In my own case, the primary irregularity of the pupil suggests lateral dislocation of the lens, but as the pupil was in a few days restored to its normal circular form and reaction (although the latter was somewhat sluggish), it may be regarded as an example of partial traumatic mydriasis, perhaps associated with a slight tear in the sphincter of the iris, although this could not be demonstrated. With the exception of this condition, which was temporary and which disappeared before the onset of glaucoma, and the slight laceration of the conjunctiva there was no demonstrable lesion in the anterior portion of the eye. The interesting manifestation which antedated the glaucoma, or rather which may be regarded as its first stage, was the optic neuritis. Now, although textbooks do not commonly describe optic neuritis as an antecedent of glaucoma, there are many observations which indicate that inflammation of the optic nerve frequently, if not always, precedes the development of glaucoma, and some authors speak with confidence of a glaucomatous papillitis[8]. It seems likely, on the basis of a number of microscopic observations, notably one by L. Webster Fox and W. A. Brailey[9], that inflammation of the nerve may travel forward and finally invade the ciliary muscle; or perhaps that both structures, viz., the optic nerve and the ciliary muscle may be simultaneously affected. No doubt the blow upon the eyeball of my patient produced congestion and swelling of the ciliary structures, which as in the case already quoted from Priestley Smith, closed the outlet of the anterior chamber and helped to establish the glaucoma. Either as part of this process, or else antedating it, there were inflammation of the optic nerve and softening of its structures by inflammatory exudate, which rendered the cupping and atrophy all the more certain. The late development of the ciliary staphyloma, as in Garnier's case already quoted, indicates serious structural changes in the ciliary area, which permitted gradual bulging of the ocular coats in this region in consequence of the increased intra-ocular tension.

The evident conclusion of the whole matter is this, that in cases of traumatic glaucoma, setting aside for the moment those which cause the typical secondary variety of the disease, the lesions, so far as we may judge from microscopic examinations, are similar to those which we find in the primary variety of the affection. These cases further indicate the necessity of keeping under observation patients who have suffered from blows on the eye, even when all external manifestations of the injury have passed away, because there may develop, as in my own case and in many others in literature, a glaucoma which will result in blindness, if the opportunity is not afforded to treat the patient, either because he does present himself in time, or having presented himself in time, he neglects advice and disappears from observation until it is too late to remedy the evil.

ORIGINAL ARTICLES.

THE ROENTGEN RAY IN OPHTHALMIC SURGERY.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY HOWARD F. HANSELL, A.M., M.D.
PHILADELPHIA, PA.

The discovery of Roentgen, that the soft tissues of the body were transparent to certain rays emitted from a vacuum tube when electrically stimulated, and its practical application to the uses of medicine and surgery mark a distinct epoch in the history of science. Experiments conducted by scientists the world over immediately confirmed the announcement of the mystic properties of the Roentgen or X-rays, and during the eighteen months that have passed continued experimentation has increased its applicability, widened its field of usefulness, defined in part its capabilities and limitations, and has given us every reason to believe that further research with improved apparatus and with a more profound knowledge of their intimate nature, will lead to still greater achievements. We may hope, for example, that by varying intensities of energy, or diminished duration of exposure or modification of the vacuum tubes, to inspect with some degree of clearness, the contents of organs of which we now barely see the outlines, to differentiate diseased from normal structure and to give to the X-ray the prominent place in medicine that it now occupies in surgery.

The attention of ophthalmologists was practically drawn to the utilization of the Roentgen process in ophthalmic surgery in the detection of foreign bodies such as glass and fragments of metal, in the interior of the eyeball, by the papers of Clark and Williams[1] which announced for the first time that the coats of the ball are penetrable by the rays, and that the presence of foreign bodies can be diagnosed by their shadows cast on negatives and developed by the ordinary photographic processes. In Clark's case the metal, the presence of which had hitherto been extremely uncertain, was discovered to be behind the iris near the corneoscleral angle. It was extracted by the Hirschberg magnet and the patient recovered almost the full acuity of vision. The method of using the apparatus was original and novel. A photographic film encased in water-proof covering, was inserted into the nostril of the same side as the injured eye until its upper extremity lay in contact with the cribriform plate of the ethmoid bone. The Crookes' tube was stationed in front and to the same side of the head about thirteen inches distant from the eye. The rays passed through the envelopes of the eye, the nasal bone, the nasal process of the superior maxillary bone and the soft tissues, casting well-defined shadows of the bony parts and of the piece of metal. The diagnosis and cure were effected by the one force under two widely different manifestations. Williams's result in determining the applicability of the rays to the diagnosis was equally satisfactory, but unfortunately the severe accident destroyed both the sight and the ball. The patient was laid on his side on a table with the temple in contact with the glass plate and the tube held obliquely thirteen inches above and in front of the face. The rays pierced the eye, its adjacent soft tissues and the bones of the external wall of the orbit, the last casting its clearly defined shadow together with that of the foreign body, both readily distinguishable from other shadows on the plate. The history of the injury showed that the offending substance was copper, therefore the use of the magnet was precluded. The eye was enucleated and the diagnosis proven. It is interesting to observe that the different methods of experimentation resorted to in these two cases demonstrate respectively, that the nasal and temporal walls of the orbit offer no practical obstacle to the applicability of the Roentgen process in ophthalmic surgery, and that both results disprove the earlier experience that the ocular envelops themselves cast shadows so dense that that of a fragment of metal would be concealed[2].

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[7] Jahresbericht f. Ophthalmologie, xxii, p. 341.

[8] For a full discussion of this subject consult "Glaucoma: Its Symptoms, Varieties, Pathology and Treatment," by Alexander Stirling, Annals of Ophthalmology and Otology, Vol. v, No. iv, p 1026; Ibid, Vol. vi, No. 1, p. 47.

[9] Royal London Ophthalmic Hospital Reports, London, 1881, x, ii, p. 206.

[1] Trans. Amer. Ophthal. Soc., July, 1896.

The good work inaugurated in Columbus and Boston has been continued in Philadelphia with uniformly successful result. The labors of Stern in the polyclinic, of Goodspeed and Leonard in the university and of Sweet in the private laboratory of Queen & Co. have met with pronounced success. To the first named of the gentlemen I am indebted for excellent skiagraphs of the two cases reported below. After repeated experiments according to the methods of Clark and Williams, Dr. Stern succeeded by the simple device of bandaging the sensitive plate to the temple on the side of the wounded eye, allowing the patient to sit upright and suspending the tube in front of and to the opposite side at an angle of 45 degrees and fourteen inches distant, in obtaining pictures that showed beyond question the existence of foreign bodies within the ball. These are the first two successful cases in Philadelphia and demonstrate the claims previously made that the X-rays are an useful adjunct to the diagnostic resources of the ophthalmic surgeon.

During the past winter, with the able co-operation of Dr. Stern, I made a number of efforts to determine whether the rays had a beneficent or injurious effect on diseased and healthy eyes. It was found in cases of opacity of the media such as leucomatous cornea, capsular and lenticular cataract, that no improvement whatever could be noted either in the disease or in the ability of the patients to see clearer through the fluoroscope than without it. In a case of nearly absolute central scotoma due to a large patch of central retino-choroiditis, repeated exposure to the rays as they were emitted from the tube gave the same negative result. The findings in cases of atrophy of the optic nerve were equally discouraging. From these trials it was concluded, as a means of treatment of diseased conditions causing blindness, the rays were of no value. The only exception that I am able to make to this statement is recorded in the history of Case 1, when the exposure had the unexpected effect of soothing pain and reducing inflammation, but whether this happy result was simply a coincidence or a real or psychic manifestation can not be asserted. Dr. Wilkinson of the California School for the Blind, selected six pupils for testing, one with destruction of the anterior part of each eye from an old traumatism, one with complicated congenital cataract, one with partial phthisis bulbi from ophthalmia neonatorum, and three with optic nerve atrophy. In none did the rays assist the vision in the slightest degree. Beck[3], in speaking of the possible curative effects of the rays in zymotic diseases, states that the vitality of pathogenic bacteria is not impaired even after an exposure of several hours. As bearing on the subject of the sedative action of the rays mentioned as occurring in my first case, the report of their effect[4] on frogs is of interest. A frog was placed in a small wooden box toward which the rays were directed, while a control frog in a similar box was protected from the rays by a sheet of lead laid on top of the box. To each was administered .04 mg. of strychnia; the first showed no trace of intoxication, while the latter was found in tetanic convulsions. Bock's[5] suggestion that if persons blind from want of transparency of the media might be able to read letters painted on a card-board, that were varnished and dusted with powdered metal, if they were subjected to the action of the X-rays is impracticable unless a fluoroscope or some other impossible tungstate of calcium screen by which the shadows were rendered visible be placed behind the opaque cornea or lens. Otherwise this source of illumination is no more available than any other.

No cases of injury to the tissues of the eye from the action of the rays has been published even under the former prolonged exposures, and now with improved apparatus the danger of burning the skin or producing destruction of the hair bulbs is insignificant.

Case 1.—R. G., machinist, 25 years of age, applied at the out-patient department of the Jefferson Hospital in October, 1895, with the history of an injury to the left eye while breaking a cast-iron elbow with a hammer. The cornea presented a small, irregular cicatrix. The anterior capsule and the lens had commenced to opacify. The iris was inflamed and adherent to the capsule and vision was greatly reduced. No foreign substance could be seen in the imperfectly illuminated media or fundus. Under treatment the inflammation subsided and no operation was resorted to. The man was requested to return frequently for inspection. No severe symptoms developed, although the eye was subject to attacks of irritation until October, 1896, one year later, when irido cyclitis supervened. The patient was now subjected to the X-rays, and after most creditable perseverance Dr. Stern succeeded in obtaining a shadow picture that showed the presence of a piece of metal probably located in the anterior portion of the vitreous body. It is interesting to note that one of the exposures was made during an attack of irido-cyclitis. The patient voluntarily stated that the pain was promptly and entirely relieved, and it was observed that the marked injection was greatly reduced. After an unsuccessful attempt at extraction by the Hirschberg magnet the ball was enucleated. Upon section, a scale of iron 2 mm. in length, ½ mm. in width, was found firmly imbedded in the ciliary body and surrounded by a mass of exudation.

Case 2.—F. N. was admitted to the wards of the Jefferson Hospital Nov. 14, 1896. While chiseling a cast-iron staircase he received a wound in the left eye. The skin and cartilages of both lids, particularly the lower, were the seat of ragged wounds. The conjunctiva was cut; the cornea opened in its oblique diameter; the iris protruded in part through the wound in the cornea; the lens had escaped, part of the vitreous was lost and the anterior chamber was full of blood. The edges of the wound in the lid were united by suture, the torn iris and protruding vitreous cut away and the eye antiseptically dressed and bandaged. The patient asserted positively that the iron inflicting the injury was too large to be lodged within the ball and from the extent of the superficial wounds I was inclined to concur in this opinion. After a week's vain effort to save the ball the X-rays were applied and the eye enucleated. No sections of the ball were made until after Dr. Stern's skiagraph showed positively the presence of a large piece of metal in the vitreous. Subsequently a fragment of cast-iron weighing 3 grains, of irregular shape and with very sharp jagged edges, was found in the anterior portion of the vitreous.

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[2] Amer. Jour. of the Med. Sci., March, 1896.

[3] Trans. Pan-Amer. Cong., Mexico, 1896.

[4] St. Peters. med. Wochens. No. 1, 1897.

[5] Memorabilien, February, 1897.

Thus in two instances, in October and November, 1896, respectively, skiagraphy demonstrated beyond question the presence and approximate location of pieces of metal within the eyeball. In the one the condition had been assumed, in the second, the earlier diagnosis had been proven incorrect.

The next two cases in Philadelphia, reported by Ring and de Schweinitz before the Ophthalmic Section of the College of Physicians, and published in its "Transactions," Jan. 19 and Feb. 16, 1897, may be briefly referred to. In Ring's case, a piece of steel had penetrated the vitreous eighteen months before. Two radiographs were exhibited, showing the presence and probable site of the foreign body. The Hirschberg magnet was powerless to dislodge it from its bed in the ciliary body and the ball was enucleated. De Schweinitz succeeded in establishing the diagnosis by the rays, in extracting the metal after two futile attempts by other surgeons and in restoring useful vision. The following case, the last of the published series in Philadelphia, was reported before the same section in February, 1897, by Dr. A. G. Thomson. A small piece of steel had lodged in the posterior portion of the lens in a young man. Because of the continued transparency of the lens some doubt was felt as to the nature of the foreign body. A series of skiagraphs taken by Dr. W. M. Sweet, demonstrated beyond question that the foreign substance was impenetrable to the rays. Dr. Wm. Thomson subsequently extracted the lens and with it the supposed metal. Following Dr. Thomson in his detailed description of the treatment of the case read before the Amer. Ophthal. Soc. May, 1897, Dr. Sweet demonstrated his method of localizing foreign bodies in the eye, which has proven, both in this case and in others not yet published, accurate and of great value. Dr. Chas. A. Oliver reported at the same meeting, the results of his own and Dr. Leonard's methods of localization based on practically the same principle as that described by Sweet.

It is evident, therefore, that the Roentgen process, even at this comparatively early period in experimentation, while our knowledge of the properties of the rays is limited and immature, is an extremely valuable means of diagnosis in the surgery of the eye, and it is believed that continued investigation will not only confirm the claims and statements made in this paper, but will add to our conviction that in the X-rays we have an accurate, reliable and speedy method of establishing the presence or absence of foreign bodies in the eyeball.

Resignation of Professor Forel.—The celebrated alienist, Forel, has resigned the superintendency of the asylum at Burgholzli, and also announces that he will soon retire from his professorship at Zurich, in order to devote himself entirely to his studies of comparative anatomy, especially anatomy of the brain.

THE ROENTGEN RAYS IN OPHTHALMIC SURGERY.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, June 1-4, 1897.

BY WILLIAM M. SWEET, M.D.

PHILADELPHIA, PA.

The value of the Roentgen rays as a means of determining the presence of pieces of metal in the eyeball has been conclusively shown by the experiments of a number of investigators, the earliest workers in this field being Dr. Clark of Columbus, Dr. Williams of Boston and Dr. Max J. Stern of this city. The knowledge that a foreign body is in the eye, however, is not all the information required by the surgeon who operates with the electromagnet for its removal. Without some indication of the position of the body, it is not possible to reduce the percentage of failures of the magnet operation. The ordinary radiograph does not accurately indicate the position of the shadow of the foreign body on the plate in relation to the shadows of the bones of the head. Hence it is desirable to state the exact spot at which to insert the magnet with the least injury to the structures of the eye.

The first attempt to determine the approximate location of foreign bodies in the eye by means of metal indicators placed without the ball, was made by Dr. H. Lewkowitch, and reported in the London *Lancet* for Aug. 15, 1896. In these experiments, which were made on sheep's eyes and the doctor's own eyes, the indicator consisted of a piece of wire placed in front of the eye, one of the arms of the apparatus pointing to the center of the cornea. Only the anterior portion of the eyeball was included in the radiograph, the eye being rotated inward or outward to include a larger part of the globe. The determination of the position of the foreign body was then made by a triangulation of two shadows on the plate cast by the foreign body, by moving the tube a known distance from the first position in making the second exposure. The photographic plate was placed at the inner canthus. In addition to these complications, and the liability of error in determining the angles of the tube in its two positions with the plate and the foreign body, the method is open to the objection that only a small portion of the eyeball is included in the radiograph.

In my early experiments with pigs' eyes placed in the ordinary Viennese mask, it was found that unless the rays were passed through some portion of the bony walls of the orbit, foreign bodies in the posterior portion of the vitreous chamber could not be shown.

In the first experiments which I made upon the human subject, the photographic plate was inserted at the inner canthus. Photographic films were used, as being more readily cut to the shape desired. Each plate-holder carried two films, and two negatives were thereby secured at each exposure, thus avoiding errors arising from imperfections in the film coating.

The indicating apparatus consisted of an aluminum frame, carrying three steel rods, each with a rounded end. The rounded extremities were adjusted to the inner and outer canthus and to the eyeball at the center of the upper lid. Two exposures were made, one with the Crookes' tube on a line with the inner and outer indicators, and the other below the horizontal plane of these indicators. In determining the position of the foreign body in the eye, the apparatus was attached to a fixed support and a lighted candle employed to cast the shadows of the indicators on a card board similarly to those made on the negatives by the X-rays. A small object was then held in such a position that its shadow was identical with that of the foreign body. The candle was moved until the shadows of the indicators corresponded to those on the second negative. The crossing of the two lines of shadow of the test object represented the situation of the foreign body.

This method of marking was first employed in the case of a young man with a piece of steel in the lens, sent to me by Dr. A. G. Thomson. From a number of negatives I located the body 7 mm. behind the center of the cornea, and about a millimeter to the nasal side. Dr. William Thomson subsequently removed the soft and opaque lens with the piece of steel imbedded in it.

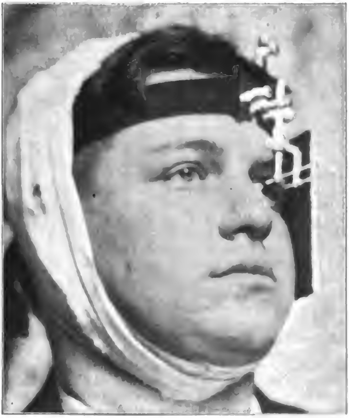
While the use of the photographic plate at the inner canthus has the advantage of bringing the sensitive film much closer to the eyeball than when in any other position, an important consideration when dealing with very small objects, it has the objection that the whole eyeball is not included on the plate. For this reason, and also because of the imperfect coating of the celluloid films, I have since used glass plates bandaged to the temple. Instead of three indicators, two only are now used.

The principle of employing two objects of known position to locate the situation of a third object from the shadows cast by these objects upon a flat surface, is extremely simple. For all practical purposes we may regard the rays from a Crookes' tube at least thirteen inches away, as being parallel in passing through a body as small as the eye. Therefore if the relative position of two objects is known, we can readily determine the situation of the third. In employing this principle in locating foreign bodies in the eye, three factors are of importance, viz., that the two indicating objects shall be at a known distance apart, and shall be parallel to each other and to the plate, and also in a perpendicular line with the plate; that one object shall point to the center of the cornea and be at a known distance from the eyeball; and that the visual axis shall be parallel to the indicators and to the plate. With the above facts known, the angle of the tube with the plate is unimportant.

The indicators may be supported by a headband and the plate held in place by an ordinary bandage, although more accurate results are obtained by employing a special form of apparatus, in which the indicators are attached to the plate holder, and are at all times parallel to each other and to the plate. The indicators are adjustable, so that one may be placed opposite the center of the cornea while the other is toward the outer canthus.

In making the negatives the tube is in front, about thirteen inches from the plate and at an angle of from 15 to 40 degrees with a vertical plane passing through the apex of each cornea. The plate is to the opposite side of the head and the rays pass through the eyeball and the external orbital wall before reaching the sensitive film. Two exposures are made, one with the tube in a horizontal plane with the two indicators and the other at any distance below. The angle of the tube below the horizontal is unimportant so long as the two exposures give different relations of the indicators on the negatives.

In determining the position of the foreign body in the eye, two circles, 24 mm. in diameter (equivalent to the size of the globe) are drawn upon paper. One circle represents a horizontal section of the eyeball and the other a vertical section. Upon the vertical section a spot is made at the center of the circle, indicating the position of the central indicator of the apparatus. The distance between the two indicators is measured toward the temporal side and a spot made to show the position of the external indicator.



Indicating apparatus supported by head band, and plate held in place by bandage.

On the circle representing a horizontal section of the eyeball, a spot is made anterior to the center of the cornea and at the same distance that the center indicator was from the eye when the radiograph was made. Another spot to the temporal side, measured by the distance between the two balls of the apparatus, marks the situation of the external indicator.

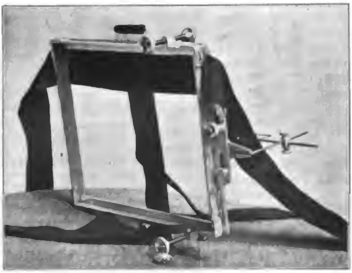
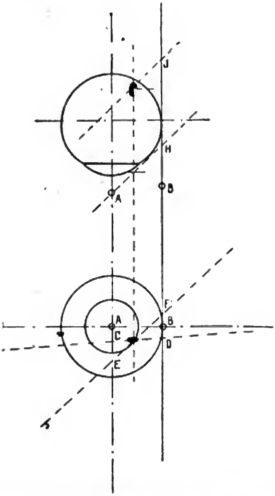


Plate-holder, with indicating apparatus attached.

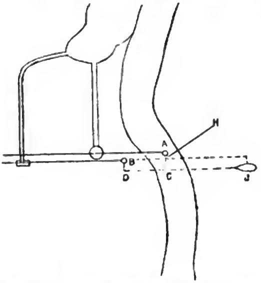
By taking the first negative with the tube horizontal to the two indicators, we measure the distance of the foreign body above or below the two balls of the apparatus. These measurements are indicated on the circle representing the vertical section of the eye and a line is drawn through the points. At some point along this line is situated the foreign body. From the second negative made with the tube below the plane of the two indicators, the measurement is taken of the distance the shadow of the foreign body is above or below the center indicator, and this point is indicated on the first circle. The same measurements are made for the external indicator. Where a line drawn through these two points crosses the line of measurements made from the first plate is the situation of the foreign body as respects its horizontal and vertical position in the eyeball.



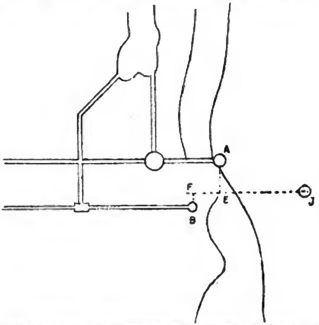
Diagrammatic circles of the eye, upon which measurements from the negatives are made to show location of foreign body. Upper circle, horizontal section; lower circle, vertical section of eyeball.

To determine the distance of the foreign body behind the apex of the cornea, one of the negatives is taken and a measurement made of the distance the shadow of the center ball is posterior to that of the external ball. The distance is entered directly above the external ball on the diagram representing the horizontal section of the eye. From this point a line is drawn through the ball of the center indicator, which indicates the direction of the rays from the tube when the exposure was made. Taking the plate again, we measure the distance that the shadow of the foreign body is back of that of the external indicator. This distance is marked perpendicularly to the spot representing the ball of the external indicator on the diagram and a line is drawn parallel to the direction of the rays from the tube. Where this line cuts a line perpendicular to the position of the foreign body shown on the vertical section of the eyeball is the distance the foreign body is behind the anterior portion of the cornea. Where the foreign body is outside the eyeball, this fact will be indicated by the crossing of the lines beyond the diagrammatic circles.

The first patient upon whom I employed this method was a young man, 20 years of age, a machinist by occupation. Six months prior to coming to Wills Eye Hospital a piece of steel struck him in the left eye. Dr. William Thomson referred the case to me to determine the presence of a foreign body and its probable location. Examination, in April, 1897, showed a scar in the sclera, 3 mm. from the corneal margin on the temporal side, starting from the horizontal plane and extending downward, almost vertically about 4 mm. The ophthalmoscope failed to reveal the presence of a foreign body but showed a cone-shaped mass of new tissue extending through the vitreous, with the apex at the disc. The visual field was lost centrally and to the nasal side, but partially preserved downward and outward.



Outline drawing of negative made with tube nearly horizontal with plane of indicators.



Outline drawing of negative made with tube below horizontal plane of the two indicators.

A number of radiographs were made with the Crookes' tube in various positions and in each of the negatives the shadow cast by a foreign body was plainly visible. The two indicators in each exposure were 12 mm. apart, while the ball of the center indicator was 4 mm. from the apex of the cornea. The external indicator was inadvertently placed 2 mm. nearer the eyeball than the center indicator. This difference is allowed for on the diagrams. The exposures averaged four minutes each. Employing the method previously described, the measurements from the negatives indicated the position of the center of the foreign body to be a point 20 mm. from the center of the cornea, 5 mm. to the temporal side and 3 mm. below the horizontal plane. The negatives also gave the probable size of the body to be 4 mm. long, 2.5 mm. wide and 1 mm. thick.

In reporting the case at the Washington meeting of the American Ophthalmological Society, Dr. Thomson stated that, owing to the mass of tissues surrounding the body it was found to be impossible to remove it by the magnet and that recourse was had to dissection. The body was extracted with some of the cicatricial mass surrounding it from a point in the sclera corresponding to that shown in the diagrams made from the radiographs.

Radiograph. John Routledge. Tube below horizontal plane of indicators. Exposure four minutes. Queen Self-regulating X-ray Tube.

The second patient from whom radiographs of the eye were obtained came to the Polyclinic Hospital to have a piece of steel removed from the surface of the cornea. Dr. H. F. Hansell noticed that the right lens was opaque and, suspecting a foreign body in the eye, asked me to make some X-ray pictures. The man, a machinist by occupation, stated that he had been blind in the eye for several years and had never suffered any pain or irritation from it. A number of negatives were made, and in each instance two shadows made by foreign bodies were shown upon the plates, one in the region of the eye and the other about an inch below the eye. There was every reason to suspect that one of the bodies was in the eye or in the orbit, but upon employing the system of measurements previously described with several sets of negatives, the body in every instance was shown to be situated at a point corresponding to the tissue covering the outer and upper crest of the orbit. The other foreign substance was in the skin of the nose. The man has failed to appear since the negatives were made, so that no opportunity was furnished to verify the findings.

I also employed the rays on a patient sent to me by Dr. Jackson, who presented the history of a piece of metal flying into the eye twenty years ago. Ophthalmoscopic examination by Dr. Jackson and by many other gentlemen at the time the case was shown at a meeting of the section on ophthalmology of the College of Physicians, showed a dark mass lying to the temporal side of the disc, about one-half millimeter long and one-third millimeter in width, in an area of atrophied choroid and pigment deposit rather smaller than the disc.

Notwithstanding that over a dozen negatives were made of the case at different times with Crooke's tubes running under various degrees of vacuum and placed at various positions, no evidence of a foreign body was shown on a single negative.

The failure of the Roentgen rays to show on the photographic plate the presence of a foreign body in the eye of the patient of Dr. Jackson, when the ophthalmoscopic examination apparently indicated the existence of a body in the eye, led me to make a number of experiments on the cadaver to determine if possible:

1. Whether very small metallic bodies in the eye could be located by means of the Roentgen rays.

2. To what extent the bones of the orbit interfered with the passage of the rays.

3. The character of the tube and the vacuum at which it should be operated to give the best results.

4. The best point at which to place the tube.

Experiments were made in the pathologic laboratory of Jefferson Medical College on a fresh, well-developed male subject. The shrunken eyeballs were removed and fresh pigs' eyes employed in which pieces of iron had been inserted. In this way the nearest approach to the ordinary conditions met with in the live subject was secured.

In making the experiments exposures were made with two forms of the Queen self-regulating X-ray tube. In one tube the rays from the concave cathode focused to a small point on the platinum plate, while in the second tube the focus was larger. In one of the pig's eyes a piece of fine wire was passed through the center of the globe in its antero-posterior diameter. In another pig's eye three pieces of wire, about one and one-half inches long, were inserted in the nasal half of the pig's eye, entering it at the corneo-scleral margin and passing through the ball to the retina. The wires were respectively .9, .5 and .3 mm. in diameter. The largest piece was partially cut through at intervals of 1 mm. In a third pig's eye, pieces of iron were inserted in the ball, each about 1 mm. long and varying in thickness from .3 to 1 mm. The bodies were inserted in the eye at the nasal side. A number of exposures were made with each tube, several at an angle of fifteen degrees with a vertical plane passing through the two eyes, and a number at an angle of about forty degrees in front of this plane.

Radiograph. John Routledge. Tube nearly horizontal with plane of indicators. Exposure four minutes. Queen Self-regulating tube.

These experiments seemed to leave no doubt as to the great superiority of the small focus point tube as compared with that of large focus. The shadow of even the finest wire is distinctly shown on the negatives made with the former, while in those made with the latter, the shadow of the wire is blurred and indistinct. This is in harmony with the well-known fact that the distinctness of the shadow of an object some distance from a plane surface depends on the size of the source of light, and where the point of illumination is large, as compared with the size of the object, the shadow cast may be indistinct or even imperceptible.

The negatives also show to what small degree the bones of the orbit obstruct the rays. The thickest portion of the external orbital wall is where the frontal and malar bones join, forming the external angle of the orbit. In the deeper portion of the orbital wall the bones are relatively thin. Notwithstanding the difference in the thickness of the bones, the shadows cast by the steel wires are perfectly distinct throughout their entire length. In making radiographs of the eye, the best results are secured when the tube is run at high vacuum, so that there shall be great penetration of the ball and the muscular and bony structures. In this way the shadow of the denser metallic body is more clearly shown upon the plate.

In the experiment with the small bodies in the eye, the superiority of the small point focus tube for eye work was again shown. The exposures made with the large point focus tube failed to show any shadows on the plates of the bodies in the eye, while in the negatives made with the small point focus tube, each of the five foreign bodies can be clearly seen. In dealing with the live subject the possible slight movement of the head during the exposure is a factor of importance.

In my experiments I have used several makes of Crookes' tubes, although the majority of the exposures were made with the Queen self-regulating tube. In this tube by an ingenious arrangement of a shunt circuit, the current passes around the tube when the vacuum becomes too high, heating up an auxiliary bulb of potassium hydrate and bringing down the vacuum. The gap in the shunt circuit may be adjusted to any desired vacuum, and the tube then runs automatically, irrespective of the length of exposure. The time of exposure was varied from two to six minutes, four minutes appearing to give perfectly satisfactory results, although in one instance an exposure of thirty-five seconds gave an negative of excellent detail.

Both X-ray plates and rapid landscape plates were used in the experiments, and so far as could be seen from the negatives, the landscape plates gave as good detail and as sharp outline of the foreign bodies as those made with specially prepared X-ray plates, besides which the landscape plates required much less time in developing and fixing.

In carrying out the experiments, Queen & Co. of Philadelphia kindly placed at my disposal their X-ray laboratory, with full facilities for testing the value of various forms of tubes and apparatus. Throughout the work I have had the assistance of Mr. H. Lyman Sayen, the expert of the laboratory, whose help has been of value in contributing to the success of the experiments.

DISCUSSION.

Dr. C. F. Clark of Columbus—The only two points I can take up that are perhaps of some importance, and which have not been dwelt on very thoroughly, are questions as to the method and as to possible accidents. The question of holding the plate in the angle of the eye has been touched on. That is the method I found most satisfactory in the first case I had; it was a very minute piece of metal imbedded in the base of the iris and it was impossible to locate it without this method. Every other method had been tried. The patient had good vision and I could get a perfect view of the fundus, and though there was a chance to save the eye, and I did save it. If I had used the ordinary method I believe I would have failed. I held the plate next the nose for eight minutes while the patient sat in the chair, and it proved very satisfactory. The piece of metal was 1.5 mm. thick.

As to accidents, I heard a paper by Dr. Scott of Cleveland, not the oculist, but a physician there who had found, in recording the cases given throughout the country, some fifty or sixty cases of accidents from the use of the Roentgen rays. In one of my cases, which I made no report of because the result was negative, the patient came back with the usual result as shown on the skin. A dermatitis had set up, the hair over the whole exposed region had fallen out and though it returned after a few months it was white. Dr. Scott says he has found that these accidents occur with every form of apparatus and in whatever way it is used. All the precautions now known may be taken and still this may result. The apparatus we used was perfect and yet a few weeks later his wife remarked that "the barber had cut his hair too close," and when finally he came to me the head was absolutely bare at the exposed points.

In regard to the method, I tried some experiments with inserting the plate into the nose, getting the thin bones of the ethmoid as the only resistance. I do not know whether it can be retained long enough to take a good picture.

Dr. MAX J. STERN of Philadelphia—At the request of my friend and colleague, Dr. Hansell, I undertook a series of experiments last year, and developed our present method of taking the pictures. I recognized that the simpler this method is made the better the results must be. The way I started out was to bandage the plate to the side of the head and I have determined that that is by far the best way to take them. I allow the plate to overflap the face one or two inches, tilting it a little forward. The exposure has been reduced from forty or forty-five minutes to one-half a minute, which I now consider sufficient. I have now been using the higher vacuum tubes which give a much shorter definition and better penetration, and one-half minute is sufficient to get a foreign body anywhere in the eye. The tube is always placed eight inches from the face.

The admirable pictures shown by Dr. Sweet certainly shows his to be a good method, but I never used it because I believe that the shortness of the image and a knowledge of the anatomic points will, in the majority of cases at least, give the location of the body. There are two planes always shown in these pictures, the one at right angles to the other, and with these and the known location of the tube the object can be located. The closer the object to the plate the clearer will the shadow be, and the greater the haziness the further is the object from the plate. I always fix the patient's eye in a line with the pin point from which my X-rays emanate. A body seen directly in that line will show the plane in which the object lies. In this way the diagnosis can be made as to position. In Dr. de Schweinitz's case the location was pointed out, the body cut down upon and removed. The same was done in Dr. Hansell's case.

Dr. LUCIEN HOWE of Buffalo—After such an excellent presentation as we have had I hesitate to show such imperfect work as I have done; still there is one point which one of the pictures illustrates that has not been touched upon. I present these two pictures [passing them]. The first one shows two rabbit's eyes, a needle having been passed through one with the object of showing how distinctly the object could be traced. The second was an attempt to ascertain the relative opacity of different portions of the eye. Taking the eye of the hog and putting it in the curtain ring and having the rays come down upon it I thought I might get some hint of the relative opacity. It was imperfect but shows that the lens region is the most opaque.

Dr. ALBERT B. HALE of Chicago—I want to report one failure in the use of the ray. It was similar to the experiment just reported. The case was that of a girl of 20 years, who, several years ago, had one discission performed for a high grade of myopia. She had never gone back for another examination. When I found her the vision was very much reduced in that eye. Ophthalmoscopic examination showed the iris adherent to what was left of the capsule in an irregular way, but there had been no great iritis. In order to see what the lack of vision was due to, I had a photograph taken, which showed very distinctly the opacity of lens substance as mentioned by Dr. Howe. The question occurred to me, has the lens matter left there become opaque or has the vitreous become atrophied and induced atrophy of the retina. There was distinct opacity where the lens ought to be. Encouraged to think it was the lens, and that if removed rays of light might pass more readily, I did a very thorough discission. With the ophthalmoscope you could see very much further in toward the fundus. But there was no improvement of vision.

Dr. A. N. ALLING of New Haven—I am interested in these papers because I made a few experiments and came to the conclusion that it was possible to locate a body by these means. I must say, however, that I think cases in which this is a great help are extremely rare, that is, where our treatment of the case would be modified by the result of this experiment. It is of scientific interest more than of practical service.

Dr. J. A. LIPPINCOTT of Pittsburg—I would like to report briefly a case of this kind where I obtained a very satisfactory skiagraph of a body in the lower part of the eyeball. The case was an easy one, as the foreign body was large, being 2 cm. long and 1 cm. thick. Its position was satisfactorily demonstrated and we were enabled to extract it with a powerful magnet.

Dr. WILLIAM THOMSON of Philadelphia—In regard to the value of diagnosis in this case of Dr. Sweet, the wound of entrance was in the ciliary region and when I saw the man, vision was almost entirely lost. The media were transparent to the inner half, but to the outer part you could see a connective tissue deposit about the wound of entrance and back of that the retina seemed to be separated and there was a distinct tract of connective tissue in the vitreous. The papilla could be distinctly seen and the vessels were swollen. I became satisfied that it was impossible to gain any further knowledge of the condition by such examination and that it would have to be determined by the X-rays. This was done by Dr. Sweet and with great satisfaction I was able to do what I promised the patient. The eye was turned strongly toward the inner canthus and I passed a strong magnet in but failed to remove the metal because it was entirely encapsulated. I then passed a strabismus hook into the wound, picked up the mass of connective tissue and with a little effort brought it forward to the lips of the wound. I then passed the hook back and forth to see if I could detach this tissue, but failed. I then seized it with forceps and with the scissors cut it from its attachments, and upon removing it found the foreign body encased. When the mass was placed in the hand and a magnet approached it, it would move but could not of course adhere to it. One of my friends asked me when I concluded the operation, "Doctor, when will you remove the eye?" It did not seem to me necessary to do so, and a week later the eye was in good condition and now it is all right, though the pupil is blocked by a dense mass of connective tissue.

Dr. G. E. DE SCHWEINITZ of Philadelphia—Through the skill of my friend, Dr. Stern, I think I have saved at least one eye by the use of the X rays. The details were localized without the excellent apparatus of Dr. Sweet which we did not have at hand at that time. It is now five months since the operation and the vision is 20-50.

THE ELECTROMAGNET OF HAAB IN THE REMOVAL OF PIECES OF STEEL FROM THE INTERIOR OF THE EYE.

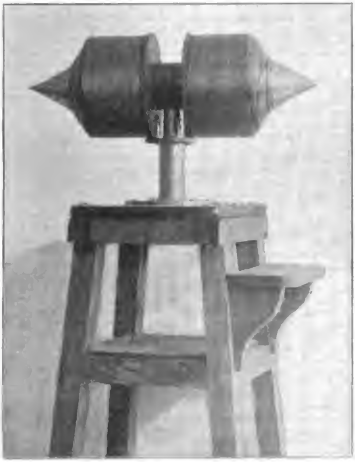
Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY JOHN E. WEEKS, M.D.
NEW YORK, N. Y.

The introduction of the large magnet for the removal of pieces of steel or iron from the interior of the eye, which we owe to the enterprise of Prof. O. Haab of Zurich, provides us with an instrument of much value in a large proportion of such cases. It is of no value whatever in the cases where the foreign body in the interior of the eye is non-magnetic; fortunately such cases are not the most common.

Haab's interest in strong magnets for this purpose was engaged by the first case which he reports ("Trans. Oph. Soc.," Heidelberg, 1892, p. 162). The patient was a woman 32 years of age. On June 10, 1892, a piece of steel passed through the cornea and anterior chamber and lodged in the posterior part of the lens projecting into the vitreous. Haab thought that if he could bring the piece of steel into the anterior chamber its removal would be easy. Three weeks after the accident, the patient was placed so that the cornea approached the conical end of the soft iron core of a large electromagnet belonging to the physiologic laboratory in Zurich, and Haab was overjoyed to see the piece of steel retraverse the path which it had made through the lens and lodge in the anterior chamber, from which place it was easily removed. The results obtained by the use of a large magnet in three cases caused Haab (*Beiträge z. Augenheilk.*, vol. xiii, p. 68) to have a special magnet made after designs suggested by Professor Kleiner in charge of the physical laboratory of the high school in Zurich. The dimensions are as follows:

Core of soft iron; diameter, 10 cm.; length, 66 cm.; weight, 30 kg.; beveled at the ends at an angle of about 65 degrees to the perpendicular at the base of the cone. The point on either end is made to screw on so that more elongated and smaller points may be attached. Two spools of insulated copper wire are fitted to the core. These spools are separated from each other by an interval of 7 cm. The spools are composed of insulated copper wire 2 mm. in diameter which is wound in layers until the spool reaches the diameter of 23 cm. The spools are beveled at the ends corresponding to the core. The connection is made by means of the wire that enters each coil at its mesial aspect. The magnet is held in position by means of a brass stand to which it is pivoted, and the brass stand is attached to a suitable support. Haab's magnet, after which the one at the New York Eye and Ear Infirmary was constructed, employs a current of 50 to 60 volts and 6 to 8 amperes. The magnet will carry a current of 20 to 30 amperes for a short time.



Electromagnet. Pulling in straight line from point of tip, 6 pounds. Pulling with two pieces on steel placed on side of cone, 15 pounds. Pulling with piece of steel placed endwise on base, 7 pounds.

Strength of the magnet.—Attraction for 1 gram of iron placed 5 mm. from the point of the magnet, 5.6 amperes, 113 grams; 7.9 amperes, 213 grams. Distance 10 mm., 5.4 amperes, 24 grams; 8.2 amperes, 63 grams; 10 amperes, 93 grams. Distance 15 mm., 6.4 amperes, 18 grams; 10.5 amperes, 63 grams.

A glance at these figures will suffice to acquaint one with the rapid increase in the power of the magnet with an increase of the tension of the current, also the rapid decrease of the attractive force on increasing the distance from the magnet.

By experiments Haab found that a piece of iron weighing 0.02 grams, lodged in the posterior part of the vitreous chamber could be made to pass through the vitreous and zonula and to engage in the iris by placing the cornea against the point of the magnet, but not through the lens or iris. The larger the foreign body the greater is the attractive force exerted.

Haab's idea was not that the large powerful electromagnet would supplant the small electromagnet, but that in certain cases it would serve to remove the foreign body through the original wound; in some cases it would serve to bring the piece of iron or steel to a part of the eye where it could be easily removed by incision and use of the small magnet, and in still other cases it could be employed for diagnostic purposes. All of these procedures are valuable and can not be so readily accomplished by any other means.

The following cases, occurring in the author's practice are illustrative:

Case 1.—August S. (*Arch. of Oph.*, xxvi, p. 84) aged 15 years, came to my office May 3, 1896. About eighteen hours before, while playing with two hammers, striking one against the other, a bit of steel broke off and struck him in the left eye. The patient consulted Dr. Knapp, who kindly sent him to me with the request that a trial be made to remove the foreign body with the large electromagnet in possession of the New York Eye and Ear Infirmary.

Status præsens.—A small curved wound 2.5 millimeters in length, from which a bead of vitreous and a piece of iris protrudes, is observed at the limbus conjunctivæ to the inner margin of the cornea and on the horizontal meridian of the globe. The anterior chamber is partly filled with blood. Pupil oval and drawn to the nasal side; it measures 5 by 8.5 millimeters. There is some blood in the vitreous chamber. Tension − 2. Vision = perception of light. The patient was immediately sent to the Eye and Ear Infirmary, admitted on my service and prepared for operation. Dr. Knapp and many others were present at the operation. Under cocain anesthesia, the prolapsing iris and vitreous were excised. The wound was then enlarged by continuing the incisions in the limbus above and below, 2 millimeters at each end, and by making an incision 2 millimeters long into the corneal tissue at right angles with the vertical incision; the whole forming a T-shaped wound. The patient was then approached to the sterilized point of the great magnet, and when the eye was within about 4 millimeters from the conical end of the magnet, the piece of steel flew from the wound in the eyeball and adhered to the point of the magnet. The pillars of the coloboma were replaced, the margins of the wound adjusted, atropin instilled and a double bandage applied. The piece of steel measured 2.5 millimeters by 1.5 millimeters by 0.75 millimeter.

Seven days after the operation the patient left the hospital, the wound had healed and the blood had disappeared from the anterior chamber. The vitreous was hazy and remnants of a clot were present in the inner third of the vitreous chamber. There had been no pain and no inflammatory reaction after the operation. Seven months after the accident the vision with correction equaled 20-30 +, the lens was perfectly transparent and the eye was used with its fellow without discomfort.

In this case, the piece of steel pierced the fibrous coat at the limbus, passed through the iris and suspensory ligament and lodged in the vitreous humor, not injuring the lens. The result proved the wisdom of the attempt to remove the foreign body through the original wound.

Case 2.—Henry W., aged 18 years, Feb. 27, 1896. Two hours before presenting himself at the New York Eye and Ear Infirmary, while at work punching bolt holes in steel plates, a small piece flew and struck him in the right eye. He was immediately admitted to the Infirmary on my service.

Status præsens.—A small penetrating wound about 3 mm. in length was observed in the limbus at the lower margin of the cornea. Slight hyphemia; anterior chamber one-half the normal depth; pupil drawn slightly downward. A small black spot was observed in the sinus of the anterior chamber below, which was supposed to be the foreign body.

Operation.—Cocain was instilled and the tip of the small electromagnet was applied to the lips of the wound without result. The wound was then slightly enlarged with scissors and the small magnet again applied without result. The patient was then brought to the large magnet and the eye at the site of the wound made to approach the point of the magnet in a right line. Pain was experienced and the tissues at the site of the wound bulged markedly. The wound was again slightly enlarged and a second attempt made to extract with the large magnet. The foreign body did not escape but it became evident that the foreign body was immediately behind the iris, which was drawn forcibly against the wound. A small iridectomy downward was done and the eye again approached to the magnet. No result. The wound was then converted into a T-shaped one, the eye approached to the point of the magnet and when within 2 mm. of the point the foreign body flew from the eye and became attached to the point of the magnet. The columns of the coloboma and lips of the wound were carefully adjusted and a double bandage applied. The piece of steel was 4 mm. long and 1.5 mm. in diameter; it had undoubtedly passed through the cornea, iris, zonula at margin of lens and lodged in the vitreous chamber.

Five days later, eye quiet, numerous floating opacities in vitreous from previous hemorrhage, obscuring details of fundus. Lens clear. March 12, discharged. Eye quiet. V. = 2-200. May 1, 1897, lens partly opaque, anterior chamber shallow. V. = 1-8. Eye very slightly injected but painless.

Case 3.—Delare M., aged 41 years. Dec. 18, 1896. This morning while at work as a boiler riveter, he was struck in the eye by a piece of iron, presumably from a rivet. The patient was admitted to the New York Eye and Ear Infirmary on the service of Dr. H. D. Noyes, who kindly permitted me to conduct the case.

Status præsens.—Marginal wound of lower lid 6 mm. long, corresponding wound of cornea, linear and extending 6 mm. into clear cornea from the limbus upward and inward, 30 degrees from the vertical meridian. The wound also extends an equal distance downward and outward from the limbus, dividing the sclera and conjunctiva. Anterior chamber partly restored. Small quantity of blood on iris below. Iris apparently uninjured but adherent to posterior lips of corneal wound. Conjunctiva at site of wound swollen and ecchymosed. Fundus can not be seen. V. = 1-x . Projection normal.

Operation.—Cocain anesthesia. The eye was approached to the point of the large magnet. Pain was complained of and there was a possible bulging of the tissues at the site of the wound. The wound was enlarged downward and a T-shaped incision made. Repeated attempts were made to remove the foreign body by bringing the point of the magnet into the wound. Pain was complained of, the eyeball was forcibly drawn onto the magnet and rotated slightly inward, but the foreign body was not removed. The patient was then etherized and the small magnet employed; the probe point being passed to the posterior part of the eye. Although at one point traction was experienced and it was thought that a metallic substance was felt, there was nothing more positive and no foreign body could be removed. As the patient had not consented to removal of the eye, the scleral wound was sutured and the eye bandaged. December 22, more or less pain has been experienced since the operation. Chemosis marked. The patient consented to enucleation, which was then done. On introducing the scissors to divide the nerve the foreign body was felt lying close to the sclera. Examination of the globe disclosed a linear wound situated a little to the temporal side of the optic nerve through which the chip of iron had almost entirely passed. Its force was spent just as it emerged from the sclera against which it lay, being displaced by the point of the enucleation scissors. The foreign body proved to be a piece of iron, irregularly circular, measuring 6.5 mm. in diameter by 1 mm. thick. Recovery was uneventful

The magnet has been used by some of the surgeons of the New York Eye and Ear Infirmary for diagnostic purposes and found to be of considerable value in determining the presence of a piece of steel in some part of the globe.

My experience in the use of the large magnet has forced me to recognize its superiority over the small magnet in all cases of recent injury where the wound is situated in the anterior segment of the globe where it can be approached by the tip of the magnet in a right line. With slight enlargement of the original wound, the foreign body, if it be steel or iron, can be made to retraverse the path made by it and the removal effected without introducing an instrument into the interior of the eye and without making a second opening into another part of the eye.

We all know how seldom an eye recovers with any degree of vision and how often it becomes necessary to remove an eye after a foreign body has been extracted by the usual opening through the sclerotic employing the small magnet. I think that the use of the large magnet will give us a large percentage of recoveries. In cases where the foreign body has passed into the vitreous and remained for more than a week, I doubt the value of the large magnet, but in cases where the lens is the resting place of the foreign body as in Haab's first case, it will be of value. For diagnostic purposes it will aid materially.

DISCUSSION.

Dr. HAROLD GIFFORD of Omaha—Some years ago I had one of these Haab's magnets made. I am afraid that members of the profession have been frightened away by the idea that they were very expensive. I do not know whether I have a liberal electrician or not, but I had the magnet made for about $72. The only difficulty I find is that it is hard to keep at hand a source of electricity that will run it. I at first had large storage batteries made, but when I wanted to use them they had usually run out. The ordinary alternating current will not suffice and it is hard to get connection with the street current. This magnet is certainly a great instrument and these cases of Dr. Weeks illustrate its value, though I should not be inclined to limit the use of the magnet to recent cases nor to cases in which the foreign body is in the anterior portion of the eye, it is certainly worth while trying for deeper objects. I never yet have brought out a foreign body with the Haab magnet I am sorry to say, but it has given me useful indications as to what I should do. In one case I was not sure whether the foreign body was in the vitreous, in the sclera, or had passed through the eye. The Haab magnet showed me that it was just behind the iris. I went into the wound then with the small magnet and although I never knew whether I got it out or not, the man's symptoms immediately ceased. In another case where the lens matter was cataractous immediately after the accident, I used the large magnet, and as the man had no pain, I judged that the substance must either be fixed in the sclera or had gone through. I waited, the lens cleared up; it had been so opaque at first that I could scarcely see any of the fundus, and at the end of a few days I could see perfectly well and found the foreign body embedded in the sclera.

Dr. H. KNAPP of New York—I think it is of very great use especially if it is not necessary to go into the vitreous. To go into the vitreous, even if you get the body out successfully, and find that the eye is good for three or four months, it will not be good after three or four years; so if you can get it out without going into the vitreous this instrument is of immense value.

Dr. J. A. LIPPINCOTT of Pittsburg—The disadvantage of the Haab magnet is its non portability. If a magnet can be constructed that is portable, it can be used where this is not serviceable. Some few years ago I had such a one constructed; it would hold up about fourteen or fifteen pounds from its point, which is considerable force. With that I have removed five foreign bodies from various portions of the eye, by using a current from the street, or rather, by continuous current from a private establishment. These large magnets are also of great value in a diagnostic way, for they not only demonstrate the foreign body in the eye by means of the pain elicited, but you can demonstrate the approximate position of the body. In all the cases in which I have operated I was able to tell about the place occupied by the foreign body by eliciting pain and traversing that area in gradually diminishing circles, with a small needle attached to the magnet.

Dr. S. C. AYRES of Cincinnati—I have never used the Haab magnet but have had a large experience with others. The first time I used it I was very successful and the patient was saved very fair vision. In another case where the foreign body, a crescent shaped piece of steel, had penetrated the cornea, I passed the magnet in and could feel that it came in contact with a foreign body, but the sensation was so slight that I was somewhat uncertain. I found later, after enucleation, that the foreign body had penetrated the sclera and my magnet had come in contact with the end which was protruding in the vitreous. In another case I found the foreign body encysted and in another discovered it later in the orbit.

Dr. E. E. HOLT of Portland, Me.—Having had quite an experience with the use of electromagnets, I have felt quite interested in this subject. I have found that in those cases in which I could make out the exact location of the body it was quite as difficult to get the body out, or more so than if I could only estimate where it was. I think in 75 per cent. of my cases I was unable to see the body, but only estimated its position and in most of those cases I succeeded in getting the foreign body by the magnet.

Dr. J. E. **Weeks** of New York—I wish to correct the impression that Dr. Gifford obtained, that I limited the use of the magnet to detecting pieces of steel in the anterior portion of the globe. Experiments made by Haab show that pieces of steel that are encysted will not be affected in the majority of cases except that the contact causes some pain to the patient and as a diagnostic means the magnet serves a good purpose.

The magnet is not portable and consequently is limited somewhat in its usefulness. A case I had a few days ago illustrates this very well. It was necessary to open the sclerotic near the equator of the globe and it was impossible to move the patient to the Haab magnet after this opening was made, because of the fear of producing prolapse of the vitreous humor. In that case the small magnet was used with success.

SHOT-GRAIN WOUNDS OF THE EYE.

Presented to the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

RY LEWIS H. TAYLOR, M.D.
WILKES-BARRE, PA.

It has been my fortune or misfortune to have under my care from time to time, a large number of patients suffering with wounds of the eyeball. Some of these have proven especially interesting to me owing to the serious nature of the injuries and the final results attained by conservative treatment. From among them I desire to present to the Section the histories of a few cases of shot-grain wounds, which I will relate briefly and follow with such remarks on wounds of this character as this brief paper will allow.

Case 1.—E. G., aged 37 years, came in the evening of Nov. 22, 1892, his right eye having been struck about 3 o'clock in the afternoon, by a shot grain from a companion's gun. From his position at the time of the accident the shot had evidently first struck a stone wall and then glanced to the patient's eye. It had passed through the lower lid and entered the globe just inside of the sclerocorneal junction, the iris being partly caught in the wound. The shot could not be seen so I instilled atropia and decided to wait till morning.

On the morning of November 23, the iris being dilated the shot grain could be seen imbedded in the lens and I decided to attempt its removal.

After making a downward section and iridectomy, with combined external and internal manipulation with loop and spatula, I succeeded in dislodging the grain and then removed it with forceps. The eye was bandaged and treated with atropia and boracic acid daily. The reaction was considerable, but this quieted down finally and the lens absorbed leaving a fairly good eye in appearance but with a dense capsule remaining and no useful vision.

In July following (1893) I lacerated this membrane with discission knife, leaving a clear central pupil with vision, in 1895, of 20-c.

Case 2.—G. C., aged 27 years, was out hunting on Nov. 2, 1894, and a stray shot from his companion's gun struck his left eye penetrating the upper lid and entering the eyeball a quarter of an inch above the corneal scleral junction. He entered the Wilkes-Barre Hospital on November 3, and I treated him there until November 24. When I first saw him the anterior chamber was full of blood, iris invisible, and vision entirely gone. The patient was placed in bed, atropia instilled and leeches applied to the temple from time to time. He came to my office November 28, with iris entirely clear, pupil dilated V. 20-cc and fundus partly seen with the ophthalmoscope.

Dec. 24, 1894. Eye now free from irritation and looking well. Pupil still dilated. Ophthalmoscope shows a dark object in the anterior part of the vitreous resting on the floor of the eye, probably the shot grain encapsulated. V. 20-c. The nerve can be partly seen with the ophalmoscope. Some shreds remain in the anterior part of the eye. Now use acid boric, with weak eserin solution.

Feb. 27, 1895. V. in O. S. 20-lxx, some in 20-l. Nerve and vessels quite distinct. Shot still remains in the anterior part of the vitreous back of the lens. With +1, V. = 20-xl.

March 30, 1895. V. = 20-xl with + .50, 20-xxx. Doing well, no pain or inconvenience. There is a slight depression in sclera at the point where the shot entered. In this case, with treatment wholly conservative, the patient recovered with useful vision and saved his eye, which at first appearance decidedly indicated enucleation.

Case 3.—J. T., aged 27 years, came Oct. 26, 1896. He was out gunning the previous afternoon and was shot in the left eye. One grain entered the eyeball a little above and back of the insertion of the internal rectus, but it could not be determined whether this lodged in the eyeball or passed entirely through it. Another shot penetrated the upper lid near the central margin, about three-eighths of an inch above, passed entirely through the lid and probably into the eye though the corneal wound could not be seen. Another passed through the right ear and another under the skin of the right temple for a half an inch.

The lids and conjunctiva were much swollen and blackened with extravasated blood. He was seen on the evening of October 25, the day of the accident, by Dr. Buckman, who instilled atropia and ordered iced compresses to be used through the night. There was now no pain, the pupil dilated, the conjunctiva much swollen but the eye quite comfortable. A clear view of the fundus could not be obtained. There was much cloudiness and evidently blood in the vitreous chamber. He could see a waving hand but could not count fingers at any distance. Here was a serious wound and one in which, owing to danger of subsequent sympathetic ophthalmia, enucleation would probably have been justified. In view of the good result in the previous cases I decided to delay operation and endeavor to save the eyeball even though a sightless one. No effort was made to find the shot. Iced compresses were continued and atropia instilled every three hours.

On October 28, the eye being entirely comfortable and swelling subsiding, the iced compresses were discontinued. Pupil was now dilated but not quite regularly so.

October 31, he reported that in the morning when he first comes to the light the right eye is sensitive, but it soon becomes accustomed to the light and is all right. Patient is not confined to the house but comes to the office daily and his eye is kept bandaged.

November 3. Clearing nicely. Sclera showing. A little blood in anterior chamber.

November 5. Now worse; he went, on the evening of November 3, to be initiated into a lodge and for the first time encountered a bright light. Both eyes congested. Atropia now used in both and iced compresses applied. This irritation soon subsided and the eye again did well, but on November 16, knowing the possibility of future complications, I advised a consultation and he went to New York, saw Dr. Knapp and remained two weeks under his care. Dr. Knapp agreed as to the possibility of saving his eye and advised delay as to operation, and keeping careful watch as to signs of sympathetic irritation, etc.

I kept him quiet for some weeks, using atropia occasionally. Early in January he went back to his work as mining engineer and reported in the latter part of January, 1897, that he was able to continue his work with the right eye all day without fatigue or inconvenience. There is still no vision in the injured eye, as he merely sees a waving hand. He is entirely comfortable and greatly pleased that the eye was not enucleated, though he was perfectly willing to have it done in the first place had I so advised, rather than run any risk whatever of injury to the other eye.

I saw him recently, May 23, 1897, and the eye was then doing well, V. 20-cc. He can read J. xvi, and the eye seems to be gaining daily. He first noticed that he could see some time last February when out surveying while there was snow on the ground. He is annoyed a little with diplopia, but this is lessening as time goes by.

While thinking of preparing a paper on this subject I have been interested in looking up the literature of similar cases. While not extensive it is certainly suggestive and well worthy the consideration of those who are so ready to enucleate every eye that sustains a serious injury.

Valois (quoted in *Annals of Ophthalmology*, January 1897, p. 193) asserts that, in his experience, shot are among the most frequent of the foreign bodies that by accident penetrate the eyeball; they may enter the globe directly from the gun, or indirectly, after having passed through, or glanced from some other foreign body. "Wounds received from direct shot are less apt to give trouble than those received indirectly, because, in the latter instance, they may be infected from contact with the reflected body, or the shot may be flattened and so inflict an irregular wound, a condition of things that materially increases the chances for infection after the accident. It is not believed that shot produces the slightest inflammatory action by virtue of any chemic properties of lead; although the vitreous promptly resents the presence of all foreign bodies, it is to be remembered that a shot is tolerated much better than any other extraneous substance."

A very interesting case of gunshot wound of both eyes, studied nine years after the accident, is reported by Dr. Robt. R. Saunders in *Annals of Ophthalmology*, July 1895. In this case one eye recovered full vision while the sight of the other was entirely lost.

Dr. Badal (*Annals d'Oculistique*, January 1895) reports a case in which an eye enucleated on account of shot-grain wound showed upon examination that the shot had crossed the eye and passed out through the sclera of the opposite side and lodged in the orbit. This is the second time he had found a similar condition. He pertinently adds: "I am led to think that hereafter it will be best to wait and not enucleate an eye wounded under similar conditions, as the shot which is lodged in the orbit is in general very well borne and the eye preserves its form and gives no occasion for surgical interference." Dr. Lagrange in discussing the above says: "I have seen a patient with the same conditions as those described. A shot had penetrated the eye and I proposed enucleation, which was refused. Some time after I saw the patient again with the eye in very good condition. In the future I shall be more reserved and wait until enucleation is necessary." Dr. Simon Snell ("Transactions of the Oph. Soc. of the United Kingdom." 1893), reports a case in which a pellet of shot was driven through the eyeball, with retention of perfect sight. "The patient was seen the same day and the question of enucleation delayed to obtain consent of the lad's father. Atropin and iced pads were used. On the following day the eye was doing so well that the question of enucleation was delayed from day to day. The vitreous gradually became clear and it became evident that no foreign body was situated in the interior of the eyeball. It was moreover rendered probable that the pellet which had entered the eyeball through the sclerotic on the inner side had passed out again close to the optic disc on its inner side. Vision further improved within a few days after the accident, and gradually returned to practically normal sight. Nine months after the accident he reads J. 1 readily and V. = 6-6."

T. R Meux ("Transactions of Tennessee State Medical Society," Nashville, 1896) reports his own case in which the shot entered the eye causing considerable reaction. Several surgeons advised enucleation, but the eye subsequently recovered so that eight and one-half years after, no difference could be distinguished between the two.

Playne ("Oph. Hospital Reports," London, 1858) reports a case in which shot entered the eye causing strabismus and ptosis with subsequent entire recovery.

Dr. Casey A. Wood (*Amer. Jour. Oph.*, 1890) speaking of the comparative danger from shot and other wounds of the eye, such as knife blade, glass, etc., says: "Less likely also is the shot to disturb the ocular membranes, to make a ragged wound, or to remain in the cavity of the globe. It goes through and makes a 'clean' passage. In scleral ruptures and in penetrating wounds made by other agents, the probability of other accidents is also greater than when small shot enters the eye. Among these are dislocation of the lens, retinal detachments, loss of vitreous and extensive intra-ocular hemorrhages. In a word, so far as the eye is concerned, the effects of wounds made by small pistol bullets and the various kinds of bird or buckshot are confined to the tissues through which they immediately pass, while the lesions resulting from scleral ruptures and penetrating wounds of other kinds are far more reaching and destructive in character."

It has seemed to me that shot-grain wounds are really less dangerous than we would naturally expect them to be from the nature and severity of the injuries received, and that in some way these grains are more nearly aseptic than foreign bodies in general. I thought this might be due to the heat generated by the powder explosion, but on examination of an ordinary bird-shot shell I find, covering the powder, a series of wads at least three-fourths of an inch in thickness, so that it is not probable that any of the flame from the powder explosion comes in contact with the shot. The heat developed by the velocity of the shot in passing through the air is thought by many to render the grain aseptic, but Dr. Suter of Herkimer, N. Y., claims to have proven by experiment that the heat developed by bullets during the passage through the air is not sufficient to render them aseptic as is generally stated. He found at least that the bacillus of anthrax would survive the ordeal and infers that it is not safe to consider bullets sterile of the germs.

Tornatola reported (*Arch. für Augenh.*, 491) in twenty-one cases of shot-grain wounds of the eye that he had noticed sympathetic affection necessitating enucleation in only a single case. He attributes this favorable result to the antiseptic treatment of the wound. Shot-grains discharged from a gun were always found aseptic, while those taken in the condition as received from the store and placed in gelatin or bouillon always developed numerous colonies from which he could often isolate the staphylococcus pyogenes albus. In experimental shot-grain wounds in the eyes of rabbits in eight cases out of ten he retained the form and tension of the bulb, provided the eye was disinfected previous to the wounding and treated antiseptically immediately after. On the other hand, in twenty cases wounded in a similar manner, in which there was no attempt at disinfection and no treatment following the wound, there followed fourteen cases of phthisis bulbi, five of panophthalmitis and only a single case which retained its ordinary appearance."

I think we may safely conclude:

1. That shot grain wounds of the eye are less dangerous than wounds of similar severity from many other causes.

2. That in general an eye wounded by shot grains, unless the wound be one of unusual severity, should not be immediately enucleated, but should be treated conservatively under careful observation.

3. A patient with a wound of this character should rest in bed for a period of two weeks or more, and the wound be treated under most rigid antiseptic precautions.

Additional interesting cases bearing on this subject may be found as follows:

John Butler: London Med. Gaz., xiii, 1858.
Arthur Benson: British Medical Journal, 1882, ii, 1086.
J. W. Southworth: Buffalo Medical and Surgical Journal, 1872-3, xii, 9-10.
Wm. Caston: Texas Medical Journal, 1887-8, iii, 311-314.
A. Poland: Oph. Hosp. Reports. London, 1858, i, 214.
White Cooper: London Jour. Med., 1851, iii, 969-976.
E. Willmer Phillips: Lancet, London, 1888, i, 1071.

DISCUSSION.

Dr. C. W. Kollock of Charleston, S. C.—I believe there are many eyes wounded by shot grain in which it is useless to enucleate because the shot has passed through the eye. In one case I saw, the shot passed directly through the ciliary body and then out into the orbit. I had the pleasure of examining this eye four or five years afterward and there was no trouble with the eye.

Another point in these cases is that those cases in which the shot passes through the cornea without wounding the lids, if they remain in the eye there is not apt to be any ecchymosis of the lids. If the shot has passed through into the orbit there will be. That I believe to be a diagnostic point.

Dr. C. A. Wood of Chicago—Some years ago I reported a series of these cases in the *American Journal of Ophthalmology* and I came to nearly the same conclusions as Dr. Taylor has. I then advanced the idea that shot grains were probably aseptic at the time of penetrating the eyeball. It seemed to me the friction of the shot grains in passing through the air rendered them sufficiently aseptic to account for the condition that occurs after the trauma. I think that has much to do with the favorable results obtained after injuries of this sort.

Dr. Robert L. Randolph of Baltimore—I think that Dr. Wood has suggested the probable explanation of this matter. Some few years ago Dr. La Garde of the U. S. Army made some experiments with regard to the infectiousness of gunshot wounds. He stood at varying distances from culture media and fired into the media with pistol and rifle. In the majority of cases he obtained negative results, that is to say the test showed that the bullet was aseptic. The aseptic condition of the bullet then would explain the comparative freedom from disastrous results after gunshot wounds.

Dr. Harold Gifford of Omaha—I would remind Dr. Randolph that the experiments referred to also gave a number of positive results and that the conditions surrounding the ordinary bird shot are not so favorable as those surrounding the bullet. You have not the chance of the flame and heat of explosion coming into contact with the shot as with the bullet in the smooth-bore rifle. The chemic properties are probably more important than the aseptic properties.

Dr. L. H. Taylor of Wilkes-Barre—I thought they were rendered aseptic by contact with the flame, but on examining the shells, I found them covered by a dense covering three fourths of an inch in thickness, so I conclude that the flame has little to do with it, but friction in passing through the air may have much to do with it.

IN WHAT CASES AND WHEN TO ENUCLEATE IN INJURIES OF THE EYE.

Presented in the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, Pa., June 1-4, 1897.

BY JOHN M. FOSTER, M.D.
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There is probably no class of cases that fall to our care that give us the same amount of anxiety and solicitude as to the probable and possible outcome, as that which occurs in the injuries, especially in the penetrating wounds, of the eye. The experience of years and a large number of cases does not enable us to say with any degree of precision, this case will have sympathetic ophthalmia, or panophthalmitis, or that that case will not. We know that in a certain class of accidents, especially in those where there has been deep, penetrating wounds, more particularly in the ciliary region, serious results are liable to follow, and they often do. But, on the other hand, how frequently we note the termination of these unfavorably appearing cases in kindly healing, without the slightest untoward symptom; no irritation of the fellow eye, and even a better result in the injured one than we had any expectation of seeing.

It is precisely this uncertainty, and the dreadful consequences that are liable to follow these injuries, that lends this subject an intense and continuous interest, giving it a respectful hearing at all times. If we could feel sure that any age, sex or condition gave an injured eye exemption from the liability of affecting its mate, we could have the comfort of feeling secure in at least a small percentage of our cases, but unfortunately we know of no such exemption. Our clinical experience has not given us such assurance, but, on the contrary, has shown beyond doubt that age, at least, has a bearing and not a favorable one; for we have ascertained that children under the age of puberty are more prone to sympathetic ophthalmia after injuries, than at any other period of life. We have not been able to go further, however, and determine any time at which there is any degree of immunity. The question is not the amount of safety age affords, but one that asks us at what age we feel the most anxiety.

Naturally, the first point of interest in any accident to the eye would be the character, and, secondly, the location of the injury or wound, affecting as they do our prognosis and treatment to such an extent, as is hardly the case in any other part of the body. Slight superficial injuries, such as are produced by blows with the fist or a dull instrument, causing contusions and bruisings of the coverings and appendages of the eye without solution of continuity of the ball itself, while they frequently are productive of serious or fatal results to vision, are in the rarest of instances followed by sympathetic affection of the uninjured member. Indeed, so seldom do we find even a sympathetic irritation from this class of injuries that we content ourselves by bearing in mind the possibility of a complication, and concentrate our attention upon the alleviation and betterment of the injured eye. Under these circumstances, that is, with no pain, irritation or photophobia, we would hardly give the subject of enucleation serious consideration, bearing in mind also the large number of even severe injuries of the eye that are not followed by sympathetic ophthalmia; only two occurred in something like six hundred cases, thus allowing us to discard a large percentage of cases from the subject in hand.

It is a far different matter, however, when we deal with a penetrating or poisoned wound, even if the instrument or particle producing it is *not* left in the globe. Its presence, nevertheless, adds that much more to the gravity of the case; while a demonstration of its absence, which is not always an easy matter, does not give a sense of relief or a feeling of security. In any event, we have a serious condition before us, which is influenced by several factors, viz., depth, position and character of the wound, as well as the presence or absence of a foreign body. All serious questions, demanding serious consideration.

Our prognosis and method of procedure will be modified or entirely changed oftentimes by the position of the wound almost alone; that is to say, when we find a gaping, lacerated wound in the region of the ciliary process, we consider the case very much more serious and more likely to demand stringent proceedings than if it is in the conjunctiva somewhat remote from this situation. We can, I feel, be governed by the following: All things considered, a wound in the ciliary region more often demands enucleation than in any other locality, and that we should not hesitate in these special cases to do the operation if there is excessive pain, indication of purulent inflammation in the affected eye, or if there is irritation, shyness of light, corneal haziness or discoloration of the iris, however slight, in the uninjured eye. The question of a foreign body in an eye renders the probability of an enucleation more probable, but is not *per se* an indication for the operation.

The question of a poisoned wound one with undoubted contamination with bacteria of any description, demands, as a rule, enucleation. I do not suggest this with the belief in my mind of the migratory theory of sympathetic ophthalmia; on the contrary, I am convinced that the only way for trouble to be started in the second eye is by means of the intimate relations between the lymph channels and spaces, the irides, etc., as shown by the majority of cases exhibiting a serous uveitis, punctate keratitis, which confirms me in the belief that a sympathetic ophthalmitis does not arise from a migration of bacteria through the optic nerve. In sympathetic ophthalmia, staphylococci and streptococci are occasionally found in both eyes, but are not the specific cause of the disease, as shown by our inability to reproduce it by inoculation. It is caused more probably by the irritation of the ciliary nerves producing a reflected disturbance of the blood and nutrition of the uninjured eye.

In panophthalmitis, microbes are plentiful, as one would naturally suppose. Streptococci, staphylococci, and varieties of micrococci, with marked infiltrations of the ciliary body and edema of the papilla.

However, it is not the purpose of this paper to discuss the merits of the different theories of the origin of the trouble; my own belief in the matter is expressed to explain in a measure my position as to the best methods of dealing with or against the disease, finding, as I have done, that section of the nerve does not replace enucleation as a preventive measure against sympathetic ophthalmia.

We must bear in mind that this disease is a rare one, and as our operations are mostly done as a prophylactic measure against its onset, or done in cases that have been blind for months or years, it renders our statistics inexact, especially as a sympathetic ophthalmia occasionally sets up after an enucleation has already been done. In this connection I will say that experience has proven that in these cases the inflammation is less virulent than that which occurs when the operation has been too long delayed.

In what cases to enucleate.—Give the operation serious thought in penetrating wounds of the ciliary region, but do not do an operation for every ciliary wound. Enucleate regardless of the situation of the wound in cases where there is marked inflammation of the injured eye and photophobia in the other; also when panophthalmitis is threatened.

The time to enucleate is as soon as possible after deciding it is necessary.

It is seldom that a prophylactic enucleation is followed by a sympathetic ophthalmitis; on the other hand, cures are at times established in cases where the symptoms have been well marked for several weeks. As a rule, however, in case the trouble has commenced, the primarily affected eye should only be removed after the inflammation has been so severe and lasted so long that there can be no hope of restoring vision. If sympathetic ophthalmitis affects the sound eye shortly after an enucleation of the injured, we feel certain that ill-defined and veiled symptoms have been overlooked and it had already begun to suffer before the operation was performed.

Where the inflammation follows after long delay, how can we account for it? As an example note an atrophic globe following an old injury, absolutely quiescent for years, when suddenly an inflammatory action commences, and the fellow eye is lost with sympathetic trouble.

In panophthalmitis an early enucleation should be done for fear of meningitis following. This dreadful sequel has commenced as late as the twentieth day, but generally begins much earlier. We all know and recognize the deformity resulting from the lack of development of the orbit in a child, following enucleation, but this should not deter us from the operation in all suitable cases, for we must feel some pangs of conscience if sympathetic ophthalmitis occurs in a case that we have not operated on for cosmetic reasons. I am strongly inclined to lean toward the operative side when my first examination, shortly after the accident, leads me to feel positive that no sight will be regained in the eye.

WHEN EVISCERATION IS PREFERABLE TO ENUCLEATION.

Presented to the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY J. C. DUNLAVY, M.D.
SIOUX CITY, IOWA.

The services of an eye surgeon are so often demanded in cases of either recent or remote traumatism of the eyeball, as well as for many conditions resulting from disease of this organ, that some general rules of surgical procedure should be adopted for the guidance of those whose advantages for rational information have been necessarily more or less curtailed, and who for lack of proper knowledge are more liable to treat a patient in the generally recognized plan of the surgeons of his community, whether or not this plan is practiced or sanctioned by the better and more enlightened surgeons as being the more rational.

In general surgery we have amputating surgeons, and in eye surgery we have enucleating surgeons, both of whom are perfectly proper and indispensable, but, alas, either are liable to travel at too rapid a pace and leave death and maimed bodies with their baneful results to follow their respective practices along the generations to come.

The surgical procedure of enucleating, or the evisceration of an eyeball, is done for several purposes of more or less seriousness or importance, for a certain class of patients. One class of persons who can not afford to lose extra time from business or labor will often consent to the sacrifice of an eye, when the ball could have been saved entire by proper patience and careful treatment. Others who bear pain poorly will yield rather than undergo the suffering of a panophthalmitis; and finally, the skilful surgeon must demand the surgical means for purely scientific reasons to lessen the danger of the fellow eye. Until comparatively recently it has been almost a wholesale custom of surgeons, more especially those of less scientific attainments, to do the easier, quicker and more brilliant operation of enucleation in all cases calling for such interference, but a few well authenticated cases of death from meningitis following enucleation during a high stage of inflammation, has aided very materially in calling a halt in this wholesale procedure, and adopting the more conservative and scientific operation of evisceration instead. The rule should be, if any can be established, in an injury to the eyeball, to eviscerate if the injury is of recent occurrence, say within a few days. The theory of this rule is based particularly on the supposition that the migration of septic germs has not yet begun. Whatever the theories of extension of inflammation to the meninges or causes of sympathetic ophthalmitis to the fellow eye, the more rational course to pursue is, for the surgeon to determine from all the conditions of the case, what appears best suited in each individual case. If his judgment be poor, the patient suffers.

It is perfectly rational in this condition, as in all others, to sacrifice as little as possible concurrent with the pathologic state of the eye. I believe no eye surgeon of respectability at the present time would think of enucleating when the globe is filled with pus, for the reason that channels already closed in the optic nerve against migrating septic bodies might, by severing the optic nerve, be opened up and admit the very sources of infection against which nature had fully guarded. And in cases where a foreign body has penetrated the eyeball and resulted in panophthalmitis, and where the foreign body can not be found by evisceration, it is better to enucleate and take the chances of meningitis, but as a rule, avoid everything possible of a traumatic character in either procedure.

In such cases, whatever may have been the cause, the rational procedure is to excise the anterior portion of the globe. The incision should be made far enough back that the iris and ciliary body should be included in that portion of the globe excised; then with a pledget of absorbent cotton dipped into a solution of sublimate, 1 to 2,000, or formol, 1 to 1,000, thoroughly wipe out all contents of the globe, leaving nothing except a clean and thoroughly washed sclera. This takes time and pains, but it is so rational that it well pays for the trouble. After the globe is thus thoroughly eviscerated and cleaned, a single stitch of No. 3 thread through the conjunctiva, not the sclera, drawn so as to merely shape the outer extremity of the sclera and not close the door completely, and an antiseptic pad of cotton or gauze applied under a light roller completes the operation; after-treatment on the usual plans; this for an eye filled with pus.

In a more recent inflammation, where the eyeball and orbital tissues are very much swollen and a destructive inflammation from some dirty or septic substance having penetrated the interior of the globe, the danger of meningitis is, to my mind, very great, and augmented by any procedure which will in any way tend to irritate the distal extremity of the optic nerve. An eye in this condition should never be enucleated. Eviscerate in practically the same manner as above described, except that the contents of the globe, which are not now purulent, can not be so easily and thoroughly removed by wiping and will need to be removed by the use of some small instrument, such as a scoop, spoon or spatula, introduced between the sclera and what is left of the uveal tract, and the contents in this manner carefully removed. The after-treatment as well as the operation is to be done under strict germicidal rules.

These two pathologic conditions will serve to illustrate the forms of panophthalmitis where evisceration and not enucleation should be done. In cases where the injury has been of such a nature as to leave cicatrices, which prevent the proper application of an artificial eye or to make the sunken globe appear more unsightly, or a constant dragging or pulling on the orbital tissues, which of itself may excite sympathetic ophthalmia, and from the nature of the injury these conditions are to be expected, the eye should be enucleated. In case of old inflammation, of whatever character, where the ball is tender, sore or subject to subacute attacks, if any part is left remaining the fellow eye is in constant danger and should be protected by the enucleation of the offending eye. In all cases where a foreign body is known to be lodged in the eye and there is greater or less inflammation, if the foreign body is not found by the process of incision or excision of the ball at some point, enucleation should be done.

At least two conditions exist where an eye should not be enucleated: When the globe is filled with pus and during a high state of acute inflammation.

604 Fourth Street.

DISCUSSION.

Dr. H. V. Würdemann of Milwaukee—I rise for the purpose of advocating in the majority of cases a properly applied enucleation. If the operation is completed by sewing up the conjunctiva in the form of a pouch we can get immediate healing and a stump that is partly movable, and if you wish to make the operation a little better you can pick up the recti muscles and bring them out of the wound. The patient can be fitted with an artificial eye within four days to a week afterward. Whoever has had a run of enucleation cases and gone to evisceration and had one case or more of sympathetic irritation will be apt to return to enucleation; whoever has done a number of successful eviscerations and has had one case of meningitis following his enucleation is apt to become a more earnest advocate of evisceration. Eight years ago I brought over a number of glass balls and I may have been unfortunate in having made a failure of the first two cases I operated on. In one I had sympathetic irritation, and since then I have been afraid to return to evisceration. This is despite the paper of Dr. Dunlavy and those of Dr. Fox. I have with me some specimens which I think show the advisability of enucleation [passing specimens]. One of the cases was an enucleation during severe panophthalmitis and the eyeball had to be removed to obtain drainage; simple incision did not give relief to the pus in the orbit.

Dr. J. C. Dunlavy—The cosmetic effect has been fully discussed and we will not take it into consideration. Purulent orbital cellulitis should not be considered with this surgical procedure at all, for evisceration could not be expected to evacuate pus in the orbit. Neither enucleation nor evisceration should be adopted by any person as the sole plan of procedure, because there are cases where every man ought to know that one is better than the other. The effort to save as much of the body as possible in the one instance and to lessen the danger of meningitis in the other are the two points I wished to bring out. About two years ago, during a session of the local society, a patient came in with a piece of metal in the eye. I removed it with the magnet and he had no trouble whatever. Some time afterward the patient hurt that same eye and I performed an evisceration, and on wiping out the cavity something caught on the cotton and I found it to be a splinter of metal. I mention it merely because it would be so unlooked for.

The Toxic Principle of Mushrooms.—The active principle of the *agaricus muscarius*, or fly mushroom, acts by paralysis of the nerve centers, causing death from the heart. There is no doubt that it is one of the most powerful of vegetable poisons. The antidote is the sulphate of atropin, hypodermatically administered at the earliest opportunity. This muscarin in the form of the nitrate or sulphate appears in the laboratory as a brown deliquescent mass, and has a recommendation as an antihydrotic with some virtue as a cure for diabetes insipidus. The eye symptoms in mushroom poisonings appear to be unrecorded.

THE MANAGEMENT OF CHILDREN WITH AN INHERITED TUBERCULAR DIATHESIS.

Presented to the Section on Diseases of Children, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1-4, 1897.

BY JOSEPH WILLIAM STICKLER, M.D.
ORANGE, N. J.

There are diverse views concerning the so-called inherited tubercular diathesis; some even deny the existence of such a thing; others fully believe in it. Vogel is one of the latter. He regards heredity as an important etiologic factor in the production of infantile tuberculosis, because children born of parents affected with this disease develop it when exposed to bad hygienic surroundings. Baumgarten thinks there is a virus transmitted from parent to offspring. Bend is arrayed against him. Edward Squire of London from a study of 1,000 cases concludes that heredity accounts for 9 per cent. of cases among children born of phthisic parents, in excess of cases among children of non-phthisic parents. He therefore believes that heredity in these cases means simply a tendency to suffer from diseases, tuberculosis among others, which all children born of weakly parents have in common Dr. Solomon Solis-Cohen says, "to make our conception of the disease sufficiently comprehensive, we must include other elements than the bacillus and the changes in cellular structure, or in chemic constitution of solids and fluids brought about by its activity. There is in the constitution of the individual, anterior to bacillary infection, something that determines the fact of infection and that largely determines, also, the course and character of the results of infection. We must not remain satisfied to cover our ignorance by naming this determining element 'susceptibility,' or negatively, 'lack of resisting power' to the bacillus; nor is it any advance to speak vaguely, whether figuratively or literally, of 'favorable soil' and 'good culture medium.' That condition which makes the human tissues a receptive 'soil,' a favorable 'culture medium' for the tubercle bacillus, that condition which of old was called 'diathesis' and now 'susceptibility' is itself a disease, a departure from the norm; and I believe it to be the most important element in the morbid complexus termed tuberculosis. It is the element requiring the greatest care in prophylaxis, the most intelligent and faithful treatment." J. Lewis Smith says that the tubercular diathesis may be inherited. "Hence, the well-known fact of tubercular families." If both parents are tubercular, the offspring almost necessarily becomes so. Without further consideration of this portion of the subject I shall assume that children born of tubercular parents are *apt* to develop tuberculosis. I shall also assume that with proper care and management, the inherited diathesis may remain latent or be entirely overcome.

To this end I shall call your attention to a few measures which, to me, seem to be of importance. The first thing to be done for an infant whose mother is tubercular, is to secure a healthy wet nurse. In most instances when this is done, the little one will gain new strength very speedily. A French mother would, in France, have her child suckle a goat if a good wet nurse could not be found. Weaning should be gradual, and not accomplished during the warm months. As long as the child does well at the breast it is unwise to interfere. Should artificial food become a necessity, very great care should be observed in its selection and preparation, and in the care of nipples, spoons, forks, bottles, glasses, etc. Sometimes inunctions of cod-liver oil, cocoanut oil or some other suitable oil will be found useful. It is unquestionably true that a few drops of brandy or wine before nursing will help the nutritive processes. Cod-liver oil, plain or in the form of emulsion may be given with excellent results in many cases, as may the dry preparations of malt, beef juice, malted milk or peptenized beef tea. Just here it should be remembered that the alimentary canal is a channel through which tubercle bacilli may find their way into the infant's system. Food containing the bacilli will do no harm in a healthy stomach and intestines, but in the event of sickness, altered mucous membrane, or absence of acid, the infected food may do great harm; hence, care in this direction. If cow's milk be used, it should be thoroughly sterilized. Dr. J. Lewis Smith directs that it should be placed in a steamer and subjected for two hours, to a temperature of 190 to 200 F. The child should be warmly but lightly clothed. The chest and waist should not be restricted and the limbs ought to have free play. If there be a catarrhal inflammation of the nostrils or throat, a cap of suitable material may be worn. It is quite important that the bowels should receive their share of attention. If the evacuations do not occur as frequently as they ought to; or are inordinately hard and expelled with difficulty, a mild laxative, enema or suppository is indicated. Gastro-intestinal catarrh would suggest mercury with chalk; calomel; aromatic syrup of rhubarb; castor oil; bismuth and other appropriate remedies. Should the child become greatly prostrated and be in an inland town or city, and the weather hot I know of nothing that will revive and restore to health as quickly and surely as a stay of a few days or weeks at the seaside.

When indoors, in cold or chilly weather, the child should have properly heated, but well-ventilated apartments. Draughts should be avoided and the temperature of the room never allowed to get so low as to chill the body. On the other hand be careful lest the temperature reach too high a point. From 65 to 75 F. is a good temperature. If the child should develop bronchitis or any other inflammatory affection of the air-tubes or pulmonary tissues the air should be kept moist. During the night, avoid sudden changes of temperature occasioned by faulty management of the heating apparatus of the room or house and protect the child against sudden changes of temperature due to change of weather.

The tubercular mother should not sleep in the same room with her child. In the homes of the very poor, the separation of the mother and infant at night is sometimes a difficult matter to manage, as in some instances there is but one room for the two. In such a case insist on the use of the cradle, placed as far from the mother as will be consistent with the care and protection of the child. Water warm enough to be comfortable, should be used for bathing the little one during the cold months; while cold water may be advantageously employed in warm weather. The bath should be given daily, but not prolonged, and followed with a brisk rubbing. These children should be shielded from contagious diseases, but in the event of their contracting them, the most judicious efforts should be made to support the system till the return to health. If the child has left its mother's breast, it should have highly nutritious and easily digested food, the character and quantity of which will be determined by the age and condition of the child.

"Avoid the depressing refinements and undue attention sometimes witnessed in city homes." Continuous city life is bad at best for these little ones. "All recognize the bright, neat little town child, quite a little fairy as it flits about, presenting a strong contrast to the typical solid country child; but the latter is full of health and strength, while the town child is delicate and fragile. Medically, these graceful and fascinating little personages are unsatisfactory. They are not all strumous, but they lean that way. They usually receive cruel treatment from those who least intend it. Bright, quick-witted and affectionate, these mites are constantly amused and entertained when they would be much better left alone.

"I well remember one, the child of a distinguished American; two able and highly intelligent women devoted themselves to it all day long. It had ducks and water fowl in its bath, with which it played while the process of ablution was going on; and pretty it looked with its painted toys. But it never got far on its journey in life." Thus spoke Dr. Fothergill.

Progressive loss of flesh and appetite with other indications of failing health point to the need of medical measures such as syrup of the iodid of iron, lactophosphate of lime, iron, arsenic and bitter tonics.

These children should reside in a healthful locality and spend much of their time in the open air. Samuel West of London, believes that the only requisite which every suitable climate possesses is that of admitting of the patient's being as much in the open air and sunlight as possible.

"Whenever sufferers can spend all day out-of-doors, and when indoors can still live in a pure atmosphere, they will do well." I think, however, it should be remembered that no climate is proof against the dangerous emanations of a filthy soil, either in city or country. For this reason, if one be in search of the best possible climate for children predisposed to consumption, villages with populations of a thousand or more should be avoided. If the child must be kept in the village or city, as is often the case, great care must be observed in getting pure water and in correcting bad sanitary conditions in and around the house. I remember being called to see a patient (tubercular) under whose window was an open privy vault. The house had defective plumbing, and stood in a swamp. Such a combination of objectionable conditions must, as a matter of course, be unhealthful and should be shunned, no matter how good the climate of that particular part of country. It is interesting just here to note that Migneco, by a series of experiments, determined the exactness of Koch's statement that sunlight kills the tubercle bacillus in a short time. Bacilli, after ten or fifteen hours' exposure, cause only local tuberculosis; while after twenty-four or thirty hours, they cause no symptoms as a rule. In certain cases the bacilli will remain active, but will be attenuated in virulence. From these facts we argue that the free admission of sunlight into houses in which children with a tubercular diathesis live, will do much to aid nature in her effort to carry them through to a healthy manhood and womanhood. Dry cold air, if the child be warmly dressed, will do it good rather than harm. Strong winds, warm or cold damp air, and a foggy atmosphere avoid. As soon as the child is old enough, proper breathing, with chest gymnastics may be practiced with great benefit. Dr. G. R. Butler recommends certain movements (*N. Y. Med. Journal*, Oct. 20, 1894), all of which are simple and easily accomplished.

Exercise A. First movement: Flex and rotate arms, fingers to shoulder, elbows at side. Second movement: Extend arms to side, palms down. Third movement: Flex and rotate arms, fingers to shoulder, elbows at side. Fourth movement: Hands down and back, extend palms midway.

Excercise B. Inhale, hold breath, revolve right arm twice slowly; exhale.

Exercise C. Arms extended to side and back, palms up. Grind shoulder blades, moving hands in small circles.

Exercise D. First movement: Extend arms at side, palms up. Second movement: Palms together in front of body. Shoulders high. Third movement: Rise on toes, inhale: extend arms to side and back as far as possible.

Exercise E. First movement: Exend arms to side, palms up. Second movement: Arms up touching fingers on top of head. Third movement: Clap hands over head, full length up. Fourth movement: Arms down at side.

I believe great benefit accrues from forcible inflation of the lungs, holding of the breath and a slow expiratory movement, the air escaping gradually through the nostrils. By this process the air vesicles, especially those of the apices, are well distended; an increased amount of oxygen is introduced into the blood and the heart is strengthened in its action. These are some of the measures which seem worth the trying if we would prolong the lives of the individuals under discussion, and it is certain that these lives are worth the effort. That many of the number develop tuberculosis and die in consequence of it, the statements of Lorey and Biedert prove. The former gives the ages of 162 tubercular cases among children as follows: From the first to the third month, 1; from the third to the ninth, 11; from the ninth to the twelfth, 31; between the first and second year, 55; from the second to the fourth, 41; from the fourth to the twelfth, 23. The latter says that 6.8 per cent. were observed under 1 year of age; 48 from the first to the fifth; 27 from the fifth to the tenth, and 18 per cent. from the tenth to the fourteenth year. Thus it is seen that tuberculosis is quite frequent between the ages of 2 and 4 years. I have said nothing about serum therapy in this connection because it seems to me that results thus far obtained do not justify its employment. If it could be shown that an antitubercular serum has the property of setting into action the processes which protect the economy against the development of the disease then it would seem wise to use it. But of that we can not yet be certain. What the individual with a tubercular diathesis wants is a reinforcing of the tissues; an increased resisting power in each cell; an uplift of the vital powers; the very best life force conceivable. This is to be gained, perhaps with the greatest certainty, by attention to the suggestions already made.

I think any paper on this subject would be incomplete without reference to the intellectual training of the child, a matter concerning which both parents and physicians have very different opinions. While in the South last winter I heard two mothers discuss this question, and as their views bear directly upon the question before us I quote what they said. Mother number one said her child was well advanced in her studies and very fond of going to school. Mother number two said: "Is that your child at the far end of the piazza; that little tot about 6 years old?" "Yes." "Well, doesn't she look pale and tired? Seems to me I would worry if she were my child." "Oh, well, I know she is weak and apt to develop lung trouble, but of course she must know something; how dreadful to grow up and be behind other children in her studies." "Well, we tried your plan for a time with our little daughter, but she soon ran down in health, so we took her out of school and have kept her as much as possible in the open air. For the last few winters we have brought her to Florida to escape the sudden severe changes and cold winds of our northern home. Here, she is out of doors all day when the weather is fine and she shows the benefit of this new life. Look at her and see how rosy and vivacious she is." "Yes, that is true, but when will she learn anything?" "When she is older and strong enough to endure the strain and confinement. What we want is to have our daughter live and enjoy good health." "Well, do you know I really think you're about right. Maybe our child would not be so frail if we had adopted a different course. The truth is we were compelled to leave our home and come South on account of her failing health We are quite anxious about her."

Is there not a lesson to be learned from this little dialogue? Is it not manifest that the child with a tubercular diathesis will do better if allowed to exercise freely in the open air than if shut up several consecutive hours daily in a room, bending over a desk, breathing vitiated air and having its delicate organization unduly taxed? What is to be gained by developing the intellect at the expense of health? Suppose the child does not learn much from books during the first few years of life? There will be time enough later, if the health be carefully looked after, for the acquisition of knowledge. As a rule, these children are precocious and are disinclined to enter into the wholesome and active sports of which their healthy little friends are naturally so fond. Hence the more urgent the necessity of insisting upon plenty of exercise and life in the open air. In many instances a few simple lessons may be taught each day but beware of overdoing in this direction. There are other details of management which will present themselves to your mind as a remedy for this state of affairs, but I trust I may sufficiently emphasize the importance of doing more than has been, or is being, done for a large number of children whose inheritance makes them liable to the development of one of the worst diseases we have to deal with, one which destroys one-seventh of mankind. Is it not possible that we may err in not considering as worthy of our special and thoughtful care the individual who does not present active positive symptoms of disease? Are we not prone to turn such an one aside with a few indifferent remarks about the necessity of taking care of the "general health"? In some instances do we not assume that parents will, in some way, take care of these little people; although we know them to be but poorly instructed, at best, as to what ought to be done. Perhaps I am more urgent in this matter than some of my professional friends; if I am, it is because some sad cases, cases badly neglected in early childhood, have come under my observation. Just recently a young man came to me with disseminated pulmonary tuberculosis. Notwithstanding his early tubercular diathesis, he was allowed to remain in a climate calculated to enervate rather than to energize his feeble constitution. No particular attention was paid to his diet. He was allowed to run about, poorly protected, in rainy and cold weather as well as during the warm and dry periods. When he had a cold he was given a cough mixture and allowed to recover as best he might. If he complained of chest pains or a feeling of lassitude, he was ignored or told they were "growing pains" and laziness. When he complained of poor food or could eat but little of good food he was told he was "finicky." When he became old enough to help support the family he was put to work where the surroundings were unhygienic, hours long and the trade wearisome. Being obliged to go to the factory in all kinds of weather, he soon caught cold. His cough became troublesome and to make matters worse he got the grip. His lungs being his weak point he rapidly developed all the signs and symptoms of tubercular phthisis, so that at the present moment he is about hopeless, as I am, concerning his ultimate recovery. As he sat in my office dejected, poor, alone in the world and too weak to earn a few dollars with which to pay his board bills, when I was told that unless some generous friend should give him a little money he would not know where to find rest for his weary and diseased body; when I thought of how comparatively easy it would probably have been to have prevented such a state of affairs by careful and early attention to his physical condition; when I thought, in connection with his case, of many others I know of I was deeply moved and convinced of the wisdom of speaking, in conjunction with others, in behalf of this vast multitude of unfortunates who, without timely aid, must, many of them, drift into just such a condition of helpless physical wreckage as is now his portion.

DISCUSSION.

Dr. W. S. CHRISTOPHER of Chicago—I heard enough of the paper to get the drift only, and I would like to hear somebody first discuss it who is opposed to it, because I happen to favor the Doctor's side in toto. The subject is one that is part of a broader matter than the relation of tuberculosis; it involves the relation of the environment to the child. Many factors the Doctor has brought out relating to the damage of the child by tuberculosis that are certainly causative factors, that assist in developing tuberculosis, that are equally potent in the development of other diseases. The reason for the existence of this Section, the reason for the study of pediatrics at all, as disassociated from other branches of medicine, is the necessity of reaching all the factors that go to make out of a puny child the strongest possible development. It is the function of the pediatrician not to cure measles or handle whooping cough, or give pills and powders, but to make out of a given child the strongest possible development; to first take into consideration all those factors of heredity which may, if allowed to accumulate, damage it, and then by so adjusting the environment, diminish the potency or effect of these factors as far as possible. With reference to the child with tuberculous ancestors, it becomes a question of building up the tissues with that form of food which experience shall in the future show to be the best, possibly along the lines that we now think the future may show. But when we get a history of heredity, it should never be expressed as "negative." There is no such thing as a negative family history. The family history is as much a part and parcel of the diagnosis of tuberculosis in childhood as is the demonstration of the micro-organism. The family history may show that the mother is tuberculous, or gouty, or that the mother is neurotic or possesses one of the types of mind and body that may be transmitted to the child, but the family history is never negative. We might as well say the child is sick, but no detail is necessary. It brings up the broad subject as to the influence of heredity as a factor of diagnosis. It also forces us to face the second element in diagnosis, that is the element in nutrition, which includes not alone the question of how much food the child has had, not alone the question of the quality of the food the child has had, but those deeper questions of the relation to each other of the different viscera of the body. If we have a child with a mammalian pair of kidneys and a reptilian type of liver, not by any means uncommon, we have such a maladjustment of organs that there is necessarily a clashing of functions. Such things are to be considered under the title of the nutritive disturbances. Having settled these questions, then we are prepared to take up the question of whether there is tuberculosis or other infection in the case. I agree with Dr. Stickler, that the infection which is most important, the one we must fight most commonly, is this one of tuberculosis, and the essayist is very well justified in taking for his subject the relation of tuberculosis, as he has done. What I heard of the paper did not bring out the elements of the relationship of tuberculosis especially and that is the reason I have gone over the subject more broadly.

Dr. J. A. Larrabee of Louisville—The remarks of Dr. Christopher lead me to believe we are all sliding on one hill. It seems to me the Doctor might have given us something to take exception to, but as it is we all agree with him.

Now, as to the broad subject of pediatrics, which we as pediatricians understand, but which the general practitioner does not comprehend, Dr. Christopher has put in a nutshell the whole evolution of this Section. It can not be appreciated by those who are not brought in daily contact with children. We must have the soil as well as the seed. Seed will grow luxuriantly and produce well only in soil that is adapted to it. There is in each of us a weak spot; we are wounded just as Achilles was wounded. We are protected to just the extent our ancestors were protected. A man is thrown into this world, representing the forces behind him, just as a ball is thrown into the air and will go a distance proportionate to the force with which it was thrown. There is nothing so catching as longevity, and that is the reason the life insurance companies in the secret room pass or reject the applicant on that ground alone. You may have disease, gout or rheumatism, but if your parents have been octogenarians, it goes far for you. But a bridge is not stronger than the weakest point. To know the diathesis, the way my patients are traveling, is more important to me than knowing the acute disease. Knowing the road they are traveling, I believe the fortification is in building up the body. The Doctor's paper, in fact, bore up that statement; keep healthy and you will not be sick. The question is how to do this. It is known that whether the body craves or demands food makes no difference. The system of cramming or forcing food into the system is known. We all know how the goose is stuffed to make his liver good. The goose is not goose enough to eat all the time, and they have to stuff him just to make him grow fat. The goose, if he could would not do this, but he can not prevent getting fat when he is stuffed. So I believe in feeding, but above all, in sunlight and fresh air. Another point is the re infection of tuberculous patients. These patients are born with barrel-shaped chests; they have a peculiar tubercular build. Those who are experienced in the study of diseases of children, can at once relegate the patient to his class. These barrel chested individuals need development. You must put them in an atmosphere that is free from tuberculosis. The cause of most of the deaths in tuberculosis is reinfection. We all have improvement in tuberculosis from a proper course of treatment, and under the microscope you can discern a lessening of the number of bacilli and you know you are doing the patient good. And any man who is gaining flesh is doing better, no matter what the microscope shows. But the patient becomes reinfected and down he goes again. Many parts of this country are becoming simply dumping grounds for these cases. Florida and southern Georgia for a time presented almost a sure cure for these cases, but now how is it? The germs are so thick there you can bottle them up and take them to Chicago and start an epidemic. The value of fresh air is emphasized by the fact the aborigines did not have tuberculosis.

Just in proportion as men live in cities, just in proportion as we congregate we will have consumption. The Indian did not have it. In the State prison in my own State, the Governor, who is a doctor, I am glad to say, took one look into the black hole and said, "This will not do; it can not be." Every human being put in there, in darkness and filth and bad surroundings, contracted disease, because the atmosphere was saturated with it. I expect we would smile at any one who would percuss the lower part of the lungs for incipient phthisis. We would say, "What are you doing there?" We always examine the apices of the lungs. Why? Simply because the upper part of the lungs has not been used. We are apt to store rubbish in attics, and nature does the same thing. We have about one-eighth of the people today suffering from residual air. The upper part of their lungs, the part beneath the clavicle, is never inflated at all. I do not blame the Irish gentleman, Mike Robe, for getting his work in there. We do not breathe to the extent we ought to. It should be the rule of every individual at the end of the day to carry out the West Point rule, and with the heels and buttocks on a line against a wall, take twelve deep respirations before retiring.

I could not go further without simply endorsing what has been said. I thank you for having given this the trend it ought to have, and I hope this discussion will not stop with these erratic remarks.

Dr. Henry E. Tuley of Louisville—This subject certainly is an important one, but I think the Doctor laid too little stress upon the importance of infection in children. I think Dr. Holt's statistics with reference to the postmortem findings in children would show us that the infection comes largely through the bronchial glands. In 99 per cent. I think the infection was noted to be in the bronchial glands. In many cases this was the only place where the infection was noted; in others, bacilli were found in other organs, but possibly they were only secondarily infected. So it would seem to me in the younger children the proper oxygenation of the blood and deep expansion of the lungs, would have little or no effect on the development of tuberculosis.

Another point, that probably more stress should have been laid upon, is how little effect we get from the placing of these children, with inherited diathesis, in hospitals, even when they have some concurrent disease. They develop the condition known as hospitalism quicker, possibly, than other children. The providing for them of open air roof gardens and sunning places, and open air porches where these children can stay, is certainly looking to the prevention of this condition of hospitalism. But even then they do badly in institutions, and if they are placed in hospitals with other diseases they should be kept there as short a time as possible. I think that is a condition that is not generally recognized.

Dr. Cook of Illinois—There were just one or two points slipped over in the discussion. In the matter of feeding, Dr. Larrabee's illustration was a good one, but he stopped short of the mark. A house is not necessarily well watered because it has a tank of water on top of the house. Assimilation is an important part of nutrition, and this may often be increased by proper hygienic care. Thus, fresh air, etc., are excellent, but I think I derive more benefit in these cases of feeble diathesis by massage than by any other one method of treatment. A thing that is not unknown, but I think not frequently enough thought of, in the care and management of these feeble children, is to carry the food out after it has been digested, and aid the already overworked heart and lymphatic system by assisting the circulation through the venous circulation, to get the toxins thrown off through the alimentary canal. In reference to the prevention of reinfection of tuberculosis, one practical thing that was not brought out, can be done by the physician, especially in the poorer families, namely, tell them whatever else they may do to take their carpets up and renovate them. Get them to practice hygiene daily, and I think fewer cases will occur than under any other simple means the physician can direct.

Dr. Edwin Rosenthal of Philadelphia—I must tell you briefly what we do in Philadelphia. Dr. Flick read a paper on tuberculosis in the fifth ward. He noted all the houses in the district and made a diagram. I am acquainted with his work and I know in those houses emigrants came to reside and took the disease and died; not only children but adults as well. He therefore presented those papers to the county and State societies, and I believe to this Association also. In the city here we can demand from the board of health the cleansing of a house in which a tuberculous patient has died. Then we show these patients how to make cartoons to spit in and how to disinfect the sputum, etc. We have two homes for consumptives here, one for males and one for females. We also have hospitals for consumptives. We have a country home for the hospital, where most of these tuberculous patients are taken in. Then we have a seaside home for sick children, where we remove these children and give them fresh air. I believe, with Dr. Larrabee, that in an infected atmosphere we can not look for a cure. A doctor in England has written a book on the care of children. Where children are put in asylums and fed on bread, meals, etc., they will become scrofulous and afterward die of phthisis. This is a question of vital interest. In the Women's Protective Association one subject chosen was tuberculosis and its prevention.

Dr. U. J. Taylor of Philadelphia—In a short discussion like this not all important points can be brought up, yet I want to allude to one of great importance which has not yet been presented, that is, exercise of the right kind. The difference between man in the savage state and the man in the civilized state is that the savage and nomadic, having leisure time, spends it in sports which keep the system in good condition, the effete material all thrown out and the chest well developed. In civilization we employ our time in some sport, such as a game of cards, or we may go to the gymnasium, but even then we go to bed without expanding our lungs. If the children engage in some kind of sport in which there is a struggle for mastery, a game of ball or a wrestle or a boxing match, they exercise their muscles and their lungs. That I think is of the greatest importance and not second to any one. Fresh air brought into contact with the air vesicles in this way will do good, but fresh air brought in by twelve perfunctory breaths, I believe, as a rule will not do as much good.

Dr. DeCourcy—While the paper treated the subject largely from a preventive basis, it did not start out with what seems to me to be the first of the great list of preventive medicines. Calisthenics and climatology and all of those various branches of hygiene have been touched upon, and they are certainly absolutely necessary as preventive measures. Inhalations and lung expansions, which have been mentioned, are certainly of very great importance, yet there is a step behind all of these things which I think demands the attention of the physician. It was said by one of old that the sins of the fathers are visited on the children to the third and fourth generation, and one would think so from the tone of this paper, and truly. If that be so, then what is the physician's duty with regard to instructing his patient as to marriage and progeny? Should he advise the children of tuberculous subjects to unite, or should he advise them on either side to select a partner in marriage who is as free from inherited predisposition to phthisis as may be possible? I will be glad if the Doctor will bring out that point in closing the argument.

Dr. W. S. Christopher of Chicago—The Doctor's paper, I think, refers more particularly to the question of the etiology of tuberculosis and incidentally to its prevention, rather than to any other factor. As at least a large part of the whole subject of pediatrics is that of prevention, it is interesting to note the phase of tuberculosis taken up by the essayist. We all know very well the methods of prevention of infection, so well carried out in some places and so little carried out in others; but the limitation of one's self to this phase must be left with unsatisfactory results, and I am satisfied the methods given by the essayist will ultimately prove much more valuable than the direct attack upon the organisms. The point brought out by Dr. Tuley I regard as one of extreme importance and I am very glad to have an opportunity to express some opinion on it. He refers to the paper recently published by Dr. Holt of New York, in which is brought out these factors: 1. A very large, and indeed very alarming, percentage of cases that die from tuberculosis present lesions within the thorax. The anatomic characteristics of this disease are to be found principally in the bronchial glands and in the pulmonary tissue. A very small percentage is to be found in the brain, a much larger percentage in the gastro-enteric tract. There are but two channels of entrance for the micro-organisms. From the fact the pulmonary glands are infected most frequently, Dr. Holt infers that the pulmonary channel is the channel through which the germ has found entrance in these cases. It is the justice of this assumption which I want to call in question. If this assumption be just, then the conclusion of Dr. Holt that the attention to the milk supply is relatively unimportant, is likewise just. But, if the conclusion Dr. Holt draws is unjust, then the relaxation of attention to the milk supply, which we are just about getting into shape, must be most horrible in its results to tuberculosis in children. Is Dr. Holt justified in saying that the germ must have gained entrance through the bronchial tract in children? He might just as well say that the lesion of variola being found on the skin, therefore the disease must have gained entrance through the skin; and the same thing he might as well say about any of the exanthemata. Does the germ of pneumonia gain entrance through the gastro-enteric or the pulmonary tract? I have seen cases in which it seemed to me to gain entrance through the gastro-enteric tract and yet produced pulmonary trouble. A child with tonsillitis has then pneumonia and this is followed by cerebrospinal meningitis which terminates fatally. The pneumonia was croupous; furthermore, the tonsillitis was a pneumococcus infection. It seems to me clear that the organism which caused the pneumonia and the cerebrospinal meningitis gained entrance through the tonsil. In that same family a child developed a diarrhea, and following that diarrhea a cerebrospinal meningitis, and died without any lesion on the part of the lung. It can hardly be doubted that these two children had the same cause for their cerebrospinal meningitis, and it points very clearly to the pneumococcus as the cause of the condition; and, if anything, the organism which affects the lungs primarily gained entrance to the circulation through the gastro-enteric tract. If Dr. Holt's theory be correct, then how will he account for such things as primary cases of tubercular meningitis? It is no answer to the argument to say there is no such thing as a primary case of meningitis, to assume there must always be an infection somewhere else in the body, because we know that is not true. Hip joint and Pott's disease we know do occur without the lung or any other structures in the body being involved. They occur with sufficient frequency for us to know they do occur. The contention of Dr. Holt that the preponderance of lesions in the thoracic cavity proves conclusively that the germ gains entrance through the bronchial tree, is utterly untenable. He may be thoroughly right that in many instances they do, but his data do not show it. His data can not show it, and they ought not to be permitted to be extended throughout the profession and permit people to let up on the attention to the milk supply.

Dr. Stickler (in closing)—In reference to marriage, I will simply say that if I could I would object in every case where a young man contemplates marrying a tuberculous young woman, or where a tuberculous young man contemplates marrying a young woman who is free from the disease. But that was not the point of my paper. I wished to direct your attention to the fact that it is our duty to look after the children already born. It is your duty and mine to do for these children what we ought; to save them from the disease their parents have made them liable to. We talk here freely and then we go home to our practices to attend some tuberculous mother, and there is a little child in a crib or on the floor, concerning whom we say not a word, and we do not do it simply because we are are not asked to. Now, is not that true? The Good Book says, "show me your faith by your works." It is not because we do not believe in an inherited diathesis. It would be foolish to say that we do not believe in an inherited tendency to disease. The trouble is we do not act sufficiently. This has been true in my experience. I have sometimes hesitated very much before speaking to the mother about this matter, for fear they would feel that I did so looking for a fee. We should interfere oftener than we do; I do not think we are living up to what we talk of. With reference to milk, we are trying in New Jersey to do something of this kind. We have a dairy there, presided over by a committee of investigation, who look into the quality of the milk and see that the dairyman does not do that which is prejudicial to the users of the milk. There is a little trickery which we believe is being done to a certain extent. The dairyman may have a call for 300 or 400 quarts of milk, and perhaps there is only 250 quarts of milk that has been inspected. He will buy the balance of what he wants and put it into the cans and put the certified label on the bottles.

THE ADVANTAGES OF VAGINO-ABDOMINAL SECTION.

Presented to the Section on Obstetrics and Diseases of Women at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY THOMAS H. HAWKINS, M.D.
DENVER, COL.

My work in pelvic and abdominal surgery has not been entirely satisfactory. In a very large proportion of operations for the removal of abscessed tubes and ovaries, and in a smaller percentage of other pelvic operations requiring celiotomy, I have deemed it necessary to resort to drainage, and in many instances to quite extensive packing with iodoform or sterilized gauze. So far as concerns sepsis and hemorrhage the results have been exceptionally good, the mortality being reduced to about 4 per cent. In certain cases, however, I have had considerable difficulty with fistulous openings that were a source of annoyance and anxiety, both to myself and my patients. Some of these fistulæ closed within a few months after the operation, others in several years, and a few are not yet filled up completely. Ventral hernia has occurred in my practice in about 12 per cent. of cases where the gauze packing and glass tubes were used.

These accidents have not been confined to my own experience. I think I may safely say that within the past five years I have seen from two to five examples of pus-discharging openings and perhaps as many of ventral hernia for each of our prominent celiotomists in Denver. My observations also prove that these mishaps are not limited to Colorado operators. Three cases of abdominal fistulæ following celiotomy by Eastern surgeons, have come into my service at the Arapahoe County Hospital. I have another at the present time, operated on outside of Colorado; also one of ventral hernia. I have had the opportunity of examining, in the preceding two years, five patients with fistulous openings and three with ventral hernia ensuing upon abdominal sections performed in other States than Colorado. In short, I have encountered cases of this character from nearly all the large cities except New York. Whether the surgeons of the metropolis are so fortunate as not to have such complications or keep their poor results at home, I am not prepared to decide. Let us hope that the former supposition is the correct one. The most distressing feature of these cases troublesome sequelæ is their refractoriness to every known means of cure. Dilating and curetting these fistulous tracts is rather a formidable procedure and is by no means always successful.

I have performed vaginal hysterectomy upon two cases. one of my own and one operated on in the past, and succeeded in permanently closing the fistulous tract. Two of my cases of ventral hernia went East and were operated on by successful surgeons. They returned to Denver, believing themselves cured, but are at the present time suffering from the old affliction, which is somewhat worse than before operation. The treatment of these deplorable accidents is not within the scope of this paper, and I call attention to them only to illustrate the importance of avoiding them if possible. With the method I have pursued in most of my cases of pelvo-abdominal surgery, during the past two years, there is no possibility of the formation of fistulous openings through the abdominal wall and the danger of ventral hernia is reduced to a minimum. In every instance, when it seems likely that drainage or gauze packing will be required, I precede the abdominal with a vaginal section. This combined method is in no sense original with myself as, to my knowledge, many others have resorted to the same plan.

The patient is placed on the table as for an ordinary vaginal operation, and the abdomen and genitalia are rendered as nearly aseptic as possible. The uterine cervix is hooked, its canal mopped out with sterilized gauze dipped in bichlorid solution, and then curetted. After gentle dilatation, so as to admit a curette of medium size, the uterine cavity is curetted carefully, dried with sterilized gauze and washed out with a weak solution of iodinized water or creolin. This is followed by a sterilized salt solution, and the cavity is again thoroughly dried. The cervical canal is packed with a bit of iodoform gauze. A semicircular incision is now made posteriorly, close to and half way round the cervix, into the cul-de-sac. If time permits, I sometimes stitch the peritoneal membrane to the vagina by means of a catgut suture; then, with my finger I proceed to explore the pelvic contents, breaking up adhesions, slowly and cautiously separating the uterus from the mass on either side and severing, as far as practicable, from below upward, all the false attachments of the ovaries and tubes, as the case may be, taking care not to rupture the abscesses or cyst, if these be present. In many cases, where simply large abscessed tubes or ovaries are found, or a hydrosalpinx, or a small ovarian cyst, this is evacuated and the pelvic cavity is washed out thoroughly and packed with gauze, no further procedure being required. When the lesions are more extensive, after as much is accomplished through the vaginal route as seems prudent, the wound is thoroughly flushed and dried out with sterilized gauze, with which it is then quite snugly packed and the vagina moderately so.

The patient is now drawn up on the table in the position for celiotomy. The incision through the abdominal wall need not ordinarily be more than two and one-half inches long, as the previous vaginal performance greatly simplifies the operation by allowing the uterus and its appendages more easily to be freed from adhesions and brought into view. The diseased adnexa are removed and the pelvic cavity is dried in the usual way, the gauze below not being disturbed.

In only one instance, in which the hemorrhage was inordinate, have I found it necessary to employ abdominal packing, which was removed at the end of thirty-six hours and the incision closed. In all the other cases, numbering thirty-five, of the combined operation I did no packing through the abdominal wound, an election fully justified by the results.

After completing the work from above, a moderate quantity of gauze is packed into the pelvic cavity, behind the uterus, and is pushed in more closely where there is much oozing. I generally utilize iodoform gauze for the first two or three strips, filling in with the sterilized variety. The stitches are now taken in the abdominal wound, which is closed hermetically by drawing the sutures firmly and catching them fast with forceps. The patient is again brought down into the usual position for vaginal procedures, the gauze packing is removed from the vagina and pelvic cavity, and the parts are once more carefully cleansed and dried. Fresh iodoform or sterilized gauze is now packed well up into the pelvic cavity and is made to fill the vagina snugly. A pudendal pad is next applied and held in place by the nurse's aseptic hand while the abdominal wall is re-opened. The gauze put in from above is quickly removed; rapid inspection is made for hemorrhage; and the wound is permanently closed, uniting the fascia with a continuous chromicized catgut suture, ordinarily, unless there is reason to speedily terminate the operation. With trained assistants and a skilful anesthetizer, with everything in readiness in a well-equipped hospital operating room, the combined operation can be done, as a rule, in from twenty-five to fifty minutes. When one has performed the operation three or four times, its duration probably need not exceed that of a simple celiotomy for the removal of diseased uterine appendages. It takes perhaps a minute more to clean and dry the genitals, three or four minutes to dilate the cervix and curette, and one or two minutes for the vaginal incision. The time occupied in separating the adhesions from below and putting in the gauze packing is amply compensated when the tubes and ovaries are about to be removed through the abdominal wound.

The more expert operators, especially the Eastern ones who are doing pelvic sections every day, may not appreciate the advantage gained by the breaking up of the adhesions from below, but in my own somewhat limited experience, I have found that this method enables me to remove the uterine appendages in about the same length of time as I formerly needed to do the operation entirely from above, a consideration of special importance to us less adept gynecologists of the West. Out of the thirty-five cases operated on by me by the combined method, I have had but one death, which was in no sense attributable to the operation. The patients suffered rather less than former ones. With a single exception the temperature never rose above 99.5, in this case the temperature (reaching 103 on the fifth day and normal on the seventh) being affected by a severe cold and tonsillitis. In every instance the gauze was removed on the third day, and the vagina flushed with warm sterilized water, loosely filled with aseptic gauze and covered with a sterilized pad. I repacked the opening into the cul-de-sac, as a rule, not more than once, and then only with a small strip of gauze. The dressing on the abdomen may remain undisturbed until the fifth to the eighth day.

Every possible objection to the combined operation is, I think, offset by its advantages. A special point in its favor is that when the conditions, as determined through the vaginal incision, permit, we may forego abdominal section and thus greatly lessen the risk. To illustrate: During the period of the above mentioned thirty-five surgical cases I had no less than twenty other patients in whom the cul-de-sac procedure alone sufficed. In one instance I found a cyst of the ovary, ruptured it, irrigated and put in gauze. The patient's temperature was normal throughout and she made a perfect recovery. Another case was that of a hydrosalpinx which I broke open during exploration. The cavity was washed out carefully, dried and packed with gauze, and the woman recovered without complications of any kind. On eleven occasions I tapped abscessed ovaries or tubes, washed them out and drained through the vagina. In one case I found an abscessed tube well down into the cul-de-sac. It was evacuated, enucleated and tied off close to the uterus and removed. The other tube and both ovaries were in good condition. The patient was flushed and drained and recovered without any bad symptoms. In three cases I opened into what was probably a ruptured tubal pregnancy of several weeks standing. The decomposed clots and other débris were thoroughly removed by the fingers and irrigation, and the space was packed with iodoform gauze. These patients recovered without a single bad complication. Finally, in three instances I found no special lesion, except adhesions, about a retroverted uterus. These were carefully and completely broken up and a large amount of gauze packed behind the uterus, which had been pushed forward as far as possible. The convalescence in these cases was short, and complete relief ensued, with the uterus in a better position. All these cases were treated successfully by means of a very simple operation, whereas abdominal section would have been accompanied by much greater risk and probably without as good results.

In complete hysterectomies, where there is extensive oozing and reason to fear hemorrhage, in one or two instances I have thought it best to use packing from above; I have pushed the gauze well down into the opening through the vault of the vagina, then filled the vagina from below. At the end of the first or second or third day, as deemed best for the removal of the gauze, the vagina is emptied and carefully washed. The end of the gauze protruding through the abdominal wound is cut off close to this incision; the part remaining may be softened with a little sterilized water. By means of a tenaculum or dressing forceps the residue of gauze is then pulled out *per vaginam*. The incision in the abdominal wall is now closed, and the pelvic cavity and the vagina are again packed from below.

SOME REFLEX DISTURBANCES DUE TO PELVIC DISEASE.

Presented to the Section on Obstetrics and Diseases of Women, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY JOHN MILTON DUFF, M.D.
PITTSBURG, PA.

Reflex disturbances in the human body from whatever cause, are generally a great source of annoyance to the practitioner. Especially is this the case when the original disease does not present marked symptoms, or at least where the reflex disturbance overshadows the real disease. These conditions make the diagnosis difficult and consequently the treatment is often misdirected. I will briefly report a few cases in point:

Case 1.—Patient (A 3474, South Side Hospital case-book), Mrs. A. N., age 39 years, married fifteen years, no children. Family history good and excepting ordinary diseases of childhood has always been healthy until two years ago, when she began to show symptoms of chronic inflammatory pelvic disease. For the past three months she has been suffering from insomnia, sleep being procured only by the use of hypnotics. For some time her mental condition has been bad. Her conversation is now very incoherent. She has a high temperature, rapid, feeble pulse, great tenderness on pressure over the suprapubic region. Bimanual examination reveals enlarged and tender ovaries, tubes and uterus. On April 6, 1896, I removed the uterus and appendages by the vaginal route. She made an uneventful recovery. At the end of three weeks her mental condition was apparently normal. Eight months later, the last report I had from her, she had gained over fifty pounds in weight and expressed herself as in perfect health physically and mentally.

Case 2.—Patient (A 2923 South Side Hospital case book), Mrs. C. Z., age 30 years, married ten years, mother of four children; chronic ovaritis and salpingitis; mental condition good. I removed her uterine appendages Sept. 16, 1895. She made an uneventful recovery and left the hospital, presumably well, Sept. 22, 1895. Three weeks afterward I was called to her father's house to find her suffering from violent mania, having attempted but a few hours before to commit suicide by cutting her throat. At the end of one year this woman had returned to a normal condition of health. This is the only case of which I am aware in which mental aberration followed the removal of the appendages in my practice.

Case 3.—Patient (A 4081 South Side Hospital case-book) Miss E. Mc., age 27 years; health always good until within past three months, when she began to be affected with nausea and occasional vomiting after eating. For the past two weeks the stomach rejects all food and in order to sustain life nutrient enemata have been resorted to. Examination revealed a cystic ovary, which I removed on Dec. 4, 1896. The patient left the hospital Dec. 27, 1896, apparently well, not having vomited any since the second day after the operation. At present she is in excellent health.

Case 4.—Patient (A 4075. South Side Hospital case-book), Mrs. S., age 48 years, mother of two children, youngest 20 years old; has history of pelvic disease for five or six years. Her trouble was not sufficient, however, to keep her from her household duties, except for short periods of time, until July 1, 1896. At this time she was attacked with nausea and vomiting. Dr. Boyd of Knoxville, Pa., was called to see her. After exhausting his resources medically, as well as those of a number of practitioners who were called in consultation, without avail, the patient was removed to the South Side Hospital on Nov. 30, 1896. At that time she was scarce more than a living skeleton. She had been nourished entirely *per rectum* for eighteen weeks, the stomach during this time apparently rejecting everything, even to water. Her condition was such that I hesitated to attempt any operative procedures. My colleagues on the staff advised against it, as they did not think she could even bear the anesthetic. She and her family, who had persistently refused for several weeks to allow an operation, insisted that she be given the chances. On Dec. 2, 1896, I removed two large pus tubes and cystic ovaries. Her recovery from the operation was slow, as the wound became septic, she not leaving the hospital until Feb. 8, 1897. She, however, never vomited after the third day following the operation. She was in my office a few days ago, has regained her normal weight and is now attending to her ordinary household duties.

Case 5.—Mrs. K. M., age 32 years, mother of three children, the youngest 4 years old. She has had symptoms of pelvic disease for three years. Her principal trouble, however, is that she has been almost a constant sufferer from sciatica on the right side for two years. One year ago her uterus was curetted and cervix repaired, after which she rapidly grew worse. For the past six months she has been unable to leave her room except when carried down stairs. She could only walk with help on the level floor. On Dec. 10, 1896, I removed the right ovary, which was cystic and generally adherent. She was discharged from the hospital Jan. 12. 1897, free from sciatica and able to walk without help. A few days ago she came by herself on the train and without inconvenience walked several squares to my office.

Case 6.—Patient (A 4360, South Side Hospital case book), Mrs. S. Mc., admitted May 8, 1897. Examination revealed a chronic inflammatory condition of the uterus and appendages. The patient dates her trouble from her last confinement, eight years ago, since which time she has been having occasional epileptoid seizures. For the past two years these seizures have become more frequent, sometimes occurring five or six times during the month, their occurrence being more frequent near the menstrual period. For several months she has been suffering from insomnia and has been in such a nervous condition that she could not be induced to remain alone during her waking hours. On May 12, 1897, I removed her uterus and appendages by the vaginal route. In this case, as only eighteen days have elapsed since the operation, it is too soon to draw conclusions. At the present time the patient is up, walking about the room and says she feels splendid. She has not had a convulsion since the operation. She eats well, is perfectly free from pain and has slept well for the last twelve nights. She will now remain alone without comment. To use her own words, as she expressed them to the Chairman of this Section when he visited the hospital a few days ago, "All that fear and ugly feeling has gone and I believe I am a *new woman.*"

I have thus presented these few cases without minutiæ, hoping they may form a nucleus for a discussion upon this, to me, interesting subject. I do not wish it to be inferred that in my practice all cases have been as successful as those reported; such would be far from the facts, as I have frequently been disappointed in results.

A CASE OF FIBRINOUS BRONCHITIS.

Read before the Chicago Pathological Society, October 1897.

BY JOSEPH M. PATTON, M.D.
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Chronic essential (primary) fibrinous bronchitis, croupous bronchitis or bronchitis pseudomembranacea is a rare affection. Its rarity is commented on by every observer of the disease, and is sustained by the small number of cases reported, no observer having seen more than one or two cases.

Birmer[1], who wrote the first extensive monograph on the subject in 1855, says: "Bronchitis crouposa is a very rare affection." Galen[2] observed a case of bronchitis fibrinosa, though he erroneously described the bronchial cast which he saw as a coughed up pulmonary blood-vessel. Tulpius[3] in 1641, presented the first reliable report on fibrinous bronchitis. He described the fibrinous exudate as *surculi venæ arteriosæ expectorati*, and illustrated his report by two drawings which do not leave any doubt as to the nature of the affection. Morgagni,[4] in 1760, described fibrinous bronchitis.

Birmer (loc. cit.) gives an elaborate description of fibrinous bronchitis based on a series of fifty-eight cases, of which number fifty-six were collected by him from literature. Two cases came under Birmer's own observation.

An extensive monograph on fibrinous bronchitis, with a complete list of the literature pertaining thereto, is found in the chapter on this subject by Riegel[5] in Ziemssen's "Handbuch." In 1893 an extensive article was published by Beschorner[6] in which we find the first contradiction of the generally accepted view of the fibrinous nature of the exudate expelled in the form of bronchial casts in fibrinous bronchitis.

In the case reported by Beschorner the microscopic examination was made by Neelsen, who found that sections taken from the casts when stained according to Weigert's formula did not, as they should if composed of fibrin, display a blue color, but became a pale gray. Beschorner, therefore, maintains that the material from which the casts are formed is not fibrin but mucin, and he draws a parallel between the conditions found and the exudates formed in bronchitis fibrinosa and those in enteritis pseudomembranacea.

Similar conclusions are arrived at by Grandy[7] an American, who quite recently, under Weigert's direction, examined microscopically a case of bronchitis crouposa which came to postmortem.

Grandy's report is as follows: Stains of sections from casts; no color with Weigert's stain for fibrin. With thionin there resulted a weak rose color, but formalin preparations do not stain well with thionin. Sections from the bronchi: One can see distinctly how the exudate makes its way from the excretory ducts, and from there into the bronchi, that is into the bronchial exudate.

The exudate in the bronchi and in the goblet cells give the reactions characteristic of mucous: *light blue* with Van Gieson's stain, *rose red* with thionin and rather dark brown with Bismarck brown.

Farther away from the walls of the bronchi the exudate was changed and did not show the characteristic stain. Thoroughly negative was the result with Weigert's fibrin stain. The mass never stained a beautiful blue like fibrin would do, but invariably stained a pale gray like the ordinary tissue.

The results of the examinations of Beschorner, Neelsen and Grandy stand in opposition to the statement of Klebs,[8] who maintains that the exudate in bronchitis crouposa is of a true fibrinous nature. Eppinger[9] expresses the same view as Klebs, and bases his opinion on the result which he obtained with Weigert's fibrin stain.

In the case which we can add to the list of cases of bronchitis fibrinosa already published, the result of the examination of the exudate is such that we must claim that the latter is of a true fibrinous nature and consists of true fibrin.

Unfortunately, chemic tests were not made while the exudate was fresh. Still, the tinctorial tests are so decided in their results that they leave no doubt as to the fibrinous nature of the exudate.

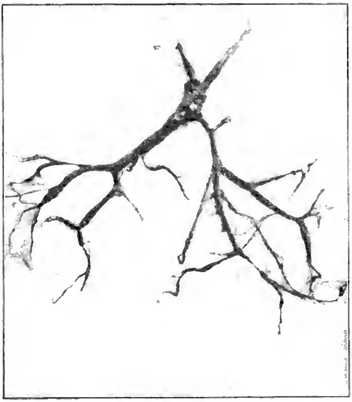
The clinical history of the case (presented through the courtesy of my clinical assistant, Dr. Gottschalk) is not as complete as could be desired, but as far as could be obtained is as follows:

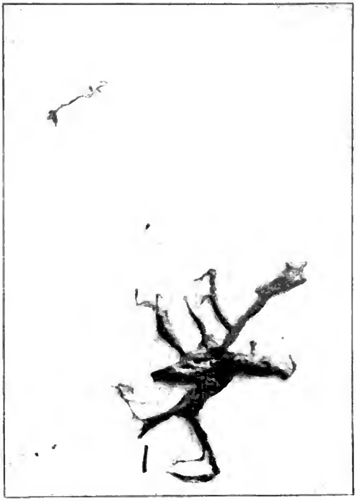
Male, aged 40, married, beer bottler by occupation. Was perfectly well until two years ago, when he caught cold while working in a wet place. During the last two years he has had repeated attacks of bronchitis.

These attacks would last a week or ten days, and were characterized by rather severe rasping cough. Expectoration was comparatively free, and there was no particular pain in the chest. About ten weeks before his recent attack he began to cough and expectorate large masses of tough, tenacious sputum, which was accompanied at times by some bloody expectoration. About four weeks before the expectoration of the cast, he developed high fever, great dyspnea and a distressing cough. There was diminished expansion and dulness over the lower two-thirds of the left lung as compared with the right lung. This attack lasted between three and four weeks, and continued up to the time of the expectoration of the bronchial cast. During this period he was confined to bed and suffered with severe dyspnea, cough, and a temperature at times above 102 degrees F.

Three days ago he expectorated considerable blood. The temperature remained high and the dyspnea and cough distressing.

This morning he had a severe attack of dyspnea and coughing. Temperature rose to 104 degrees F. After considerable effort he expectorated a large mass of material which consisted of the bronchial cast mixed with mucous and quite a little blood. The temperature became reduced almost immediately, and the cough and dyspnea were relieved.





Bronchial cast from case of fibrinous bronchitis.

Within a very short time after expectorating the cast an examination, made by Dr. Gottschalk, showed that air was entering all parts of the left lung with comparative freedom. The percussion note was almost normal, and there were mucous râles to be heard over both lungs. The patient improved rapidly and all trace of him was subsequently lost, so that it is impossible to tell what his present condition is.

In view of the marked tendency of these exudations to recur, the subsequent history of this patient would be interesting, could it be obtained.

Pathologic report.—When the fibrinous casts were obtained, two tubes containing Loeffler's blood serum mixture were inoculated at once and placed in the brood-oven for twenty-four hours. These tubes did not develop any diphtheria bacilli, but colonies, which consisted of large round micro-organisms, probably yeast cells or a species of torula.

The exudate as obtained consisted of a cast of the bronchial tree, of a total length of over 10 cm. Its main short stem, which is about 1 cm. long, is about as thick as a lead pencil and the branches run out to fine filaments. They, however, do not all terminate in a very fine thread, but some, at their ends, show a dilatation which probably represents a cast of an infundibulum. The larger branches here and there show nodular prominences. The larger tube-casts, when examined in cross sections, show a more or less central lumen, and a lamellar structure of their walls The appearance and make-up answers to descriptions given before as to the structure of the casts in croupous bronchitis. The color of the casts is a gray with a tinge of brownish red.

Pieces of the casts were hardened in alcohol, and also in formalin with subsequent alcohol hardening and stained according to different methods.

1. *Gramm's stain.*—The following micro-organisms were found in sections stained according to Gramm: Staphylococci, large bacilli with square ends (about 5 to 7 μ or more long) uniformly but slightly stained; smaller bacilli (3 to 4 μ) having stained very deeply; small bacilli (2 to 3 μ) with rounded ends, which have not taken the stain uniformly; large spherical micro-organisms looking like saccharomyces or torula.

2. *Weigert's formula for fibrin stain.*—The great bulk of the mass of the exudate which shows a fibrillar arrangement, stains beautifully blue, giving a typical fibrin stain.

3. *Hematoxylon.*—The great bulk of the tissue takes a deep hematoxylon stain.

4. *Van Gieson stain* imparts to the tissue a reddish brown color.

5. *Altmann's* acid-fuchsin picric acid stain for granula and fibrin produces a vivid red color.

From the enumeration of the stains used and the results obtained, it is evident that the casts consist of fibrin. Mixed with it are found swollen degenerating epithelial cells and a considerable number of leucocytes.

Optical test.—Small pieces of the casts, after hardening, were washed in distilled water and then teased on a slide and covered with a cover glass, and the effect was watched under the microscope. The tissue became somewhat transparent, though not very much so.

Chemical test.—Two decigrams of the hardened casts, after being well washed in distilled water and subsequently dried between filter paper, were subjected to the action of 10 c.c. of artificial gastric juice. After being in the brood-oven for three hours the exudate so treated had been completely digested. Mucin under these circumstances would not have been digested.

All the tests employed, therefore, had furnished results establishing beyond a doubt the fibrinous nature of the exudate expelled in our case of bronchitis crouposa.

REFERENCES.

1. Birmer: Die Lehre vom Auswurf, Wuerzburg, 1855, and also in Virchow's Handbuch d. spec. Pathol., Vol. 5, "Diseases of the Bronchi."
2. Galen: De locis affectis, Lib. ii, capt. i.
3. Tulpius: Observation med. Lib. ii, capt. xii, p. 115. Amsterlodamia, 1641.
4. Morgagni: De sed. et caus. morb., Epist. xxi, capt. xx, 1760.
5. Riegel: Ziemssen's Handbuch, Vol. iv, pt. 2, p. 186, "Die Krankheiten des Respirationsappar."
6. Beschorner: Ueber chronische essentielle fibrinoese Bronchitis, Volkmann's klin. Vortraege, 1893, No. 78.
7. Grandy: Ueber sogenannten chronischen Bronchial croup. Centralbl. f. Allgem. Pathol., Vol. viii, No. 13, July, 1897.
8. Klebs: Allgem. Pathol. Jena, 1889, Vol. ii. p. 410.
9. Eppinger: Lubarsch and Ostertag; Ergebnisse der allgem. Pathologie, p. 200.

A NEW BINAURAL STETHOSCOPE WITH ARMAMENTARIUM FOR COMPLETE PHYSICAL EXAMINATION.

Demonstrated before the Medico-Surgical Society of New York, Nov. 8, 1897; and before the German Medical Society, Dec. 6, 1897.

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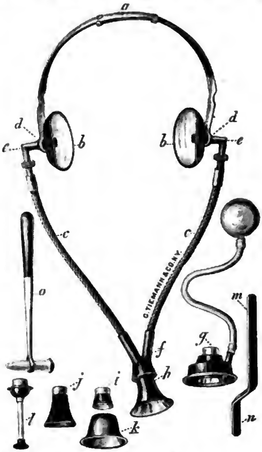
NEW YORK.

On March 16 last, I demonstrated to the Section of General Medicine of the New York Academy, an improved stethoscope with an attachable plessimeter.[1] Its daily use since then has shown me some of its imperfections and I have been working for months on the instrument with the object to improve it and above all simplify its use. I am able this evening to present to you the result of my labor, thanks to the courtesy which you extend to me as your guest, and since the instrument differs in all its details from any one thus far devised I may perhaps call it "a new binaural stethoscope."

You will see at a glance that it has neither eartips nor front springs, nor the heavy metal conducting tubes of the ordinary binaural stethoscope. Among students and in hospital services it is not infrequent that one stethoscope passes from ear to ear, and I wonder if the eartips may not have been in some cases the cause of transmitting the various parasitic organisms which are so frequently found in the external auditary canal. But there is no doubt that among physicians who auscultate a great deal every day the constant pressure of the eartips in the canal produced by the large powerful frontspring, and the unpleasant weight of the metal conducting tubes bearing down upon the delicate membrane, often cause discomfort amounting at times to severe pain in the external meatus. I know of a great clinical teacher and world renowned diagnostician of heart and lung diseases who ascribed the partial loss of his hearing to the use of the binaural stethoscope with the powerful frontspring attached to the heavy metal tubes, and to the irritation produced by the presence of the painful eartips. All these inconveniences which the old binaural stethoscope presents I believe to have effectually overcome. I have adopted an elastic, easily adjustable steel headspring *a*, to which are attached two well-fitting earpieces *b*, covering the external ear, and to which in turn are attached light flexible conducting tubes *c* and chestpieces. Finally, I have discarded the eartips entirely. To exclude external sounds I had devised, for my first stethoscope, round earpieces, which, however, did not fit every ear; I have replaced them by shell-shaped pieces more corresponding to the average comformation of the auricle; and to make the adaption of these earpieces to the temporal bone still more exact, I had them joined to the headband and conducting tubes by a ball and socket joint *d*.



To dampen the external sounds still more, and not have the conducting power suffer, I have these earshells and the angular connecting pieces *e* covered, according to Knapp's excellent method [2] with vulcanized rubber. As conducting tubes I have adopted a flexible air-tight soft rubber tubing, on the inside of which a round coiled wire is placed, and over the whole a silk covering is woven.

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[1] New York Medical Record, May 1, 1897.

The acoustic power of the instrument when in use, I believe, to have considerably increased by having the connecting joint *f* and all the bells and the other chestpieces which serve as receivers and transmitters of the sounds emitted from the thoracic or abdominal cavity, made also of metal, and covered as the earpieces, with vulcanized rubber.

To make the stethoscope as convenient as possible it is made so that it can easily be taken apart and placed in a medium sized coat-pocket and rapidly put together again, ready for use. One chestpiece in the shape of a bell suffices for ordinary examination, and this can be left on the connecting joint *f* most of the time. Occasionally, however, we desire to make an especially careful examination of either lungs or heart, and to this end I have devised a little armamentarium which includes all that may be needed to make a most careful physical examination of either thoracic or abdominal cavity. Instead of the attachable plessimeter of my former instrument, I have modified Constantine Paul's suction-cup *g* for the purpose of combining instrumental percussion and auscultation. It consists, as you see, of a rubber ball, tube and cup-shaped chestpiece, easily attached to the stethoscope. By pressing the rubber ball a sufficient vacuum is produced to have the piece retained in its position, enabling one to auscultate and percuss at the same time. But the greatest advantage of this combination lies in procuring absolute contact and stability with the cutaneous surface and thus the exclusion of all other external sounds. Besides, for studying as well as for teaching complicated heart sounds it is often convenient to have the chestpiece remain stationary. With a little care several students may alternately put on the headband and earshells without disturbing the chestpiece retained by atmospheric pressure over the point where the abnormal sounds are best perceived.

For lung auscultation I have a somewhat larger bell *h* than the one designed to auscultate the heart, *i*, and for intercostal auscultation this somewhat oval-shaped chestpiece *j* will prove rather convenient. For sensitive chests and for children the soft rubber-bell *k* should be used. It can easily be attached to the heart bell. To define when necessary a very small and circumscribed area of pathologic changes by auscultary means I have replaced the localizer of the phonendoscope by a little instrument which I call the delineator *l*. When attached to the stethoscope it may not equal the phonendoscopic sounds in loudness, but since it is minus the sound-perverting vibrations, produced by the diaphragm of the phonendoscope, the careful listener will hear all he need to, and this little instrument will certainly serve its purpose quite well in the majority of cases. All the various supplementary chestpieces for lung, heart and intercostal auscultation, the delineator, etc., are finished so that a simple insertion is all that is necessary for their attachment to the stethoscope.

While a plessimeter is not an absolutely indispensible instrument, clinical teachers and all who do a good deal of percussing, will find it at times a great relief in conjunction with a good percussion hammer. The possibility of acquiring a periostitis of the left index finger by using it constantly as a plessimeter, may thus also be averted. I have attached a convenient handle *m* to a hard rubber plessimeter *n*, and as hammer I give Flint's well-known percusser *o* the preference.

It remains only for me to thank Messrs. Tiemann & Co., for their courtesy in repeatedly altering my stethoscope until it became, what I think, a nearly perfect instrument for mediate auscultation. May it find favor with the profession and serve its purpose well.

955 Madison Avenue.

APPENDICITIS COMPLICATING OVARIAN CYST AND SIMULATING TORSION OF THE PEDICLE, WITH THREE CASES.

Presented in the Section on Obstetrics and Diseases of Women at the Forty-eighth Annual Meeting of the American Medical Association at Philadelphia, Pa., June 1-4, 1897.

BY X. O. WERDER, M.D.
PITTSBURG, PA.

Appendicitis as a complication of an ovarian cyst and accompanied by symptoms strongly resembling those of torsion of the pedicle, does not seem to be of very frequent occurrence; at least I have failed to find any cases recorded in the literature at my disposal. This is my excuse for reporting the following cases which came under my observation and in which the symptoms were supposed to be due to an axial rotation of the tumor when, on the operating table, an appendicitis was discovered to be the disturbing element which led to a wrong diagnosis.

Case 1.—Mrs. C., age 56 years, mother of nine children; one miscarriage; last confinement sixteen years ago, followed by fever; otherwise always healthy. Her present trouble dates from May, 1894, when she was seized with cramps in the abdomen and vomiting, which continued for several days. She had at times most of her pain in the right side. She has had several attacks since then of a similar nature, in the last of which she was attended by Dr. A. Koenig, who discovered a tumor in the abdomen. When I saw her in consultation with him, her acute symptoms, pain, vomiting, temperature 103 degrees, had somewhat subsided, though her abdomen was still very tender on pressure, and tympanitic. It was enlarged by a tumor occupying nearly the mid-region, more to the left, indistintly fluctuating and painful on palpation. The diagnosis as made was: Ovarian cyst, with possible torsion of pedicle. Her removal to Mercy Hospital was advised for the purpose of operation.

Operation, Aug. 13, 1894. On the right and upper surface of the tumor the omentum and several feet of small intestine with the vermiform appendix, were adherent. The latter was not much enlarged, but congested and filled with pus. It was ligated and cut, and the stump covered by a peritoneal sleeve. The adherent intestines were separated with considerable difficulty, many points requiring suture with fine silk to control bleeding. The cyst wall was unusually red and congested. Convalescence was interrupted by an attack of pneumonia at the base of the right lung, on the fifteenth day. The patient was discharged cured about six weeks after operation.

Case 2.—Mrs. K., age 39 years, mother of seven children, youngest 5 years old. Shortly after last confinement she noticed a lump in the right iliac region that has been gradually growing larger. She was seen in consultation with Dr. Potter Dec. 1, 1896. Two weeks previously she was seized with severe cramps in the lower abdomen, accompanied by vomiting and followed by high fever. The abdomen became tympanitic and extremely painful and tender, requiring frequent opiates to give relief. These symptoms abated during the last few days, though the abdomen, and especially the tumor, were still quite painful to the touch. The tumor occupied the middle of the abdomen, extending above the umbilicus, and showed indistinct fluctuation. She was removed to Mercy Hospital for operation, which was performed Dec. 6, 1896

The cyst walls were dark in color and the seat of extensive adhesions to abdominal walls, intestines and pelvis. The adhe-

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[2] Knapp; Medical Record, November 1896.

sions were freed, bleeding points of omentum ligated and removed. The appendix, which was about six inches by one half inch thick, hard, red and adherent to cyst, was freed, the meso-appendix ligated near the cecum, stripped from the distal end of the appendix; the appendix also ligated near the cecum, clamped one half inch further out and removed by cutting between; stump mopped and covered by meso-appendix which was stitched over it. Convalescence was uneventful; out of bed the twenty-first day, discharged the twenty-eighth day.

Case 3.—Mrs. Wm. E. F., age 44 years, mother of three children, youngest 6½ years old; normal convalescence. Last October, after some exertion, she noticed a swelling in her abdomen, which has remained ever since. February 26, I saw her in consultation with Dr. Ryall, who had been attending her through an attack which was started by severe abdominal pains and vomiting, which kept up for several weeks; retention of urine, abdomen tympanitic and very tender. She was very much emaciated and quite feeble, though her acute symptoms had pretty well subsided, excepting her temperature, which remained above normal.

Physical examination showed a fluctuating tumor, filling up the pelvis and abdomen, of the size of a pregnant uterus at six or seven months, which was very tender on pressure. She was removed to Mercy Hospital February 28 and operation performed March 4, after vainly trying to improve her general condition. Extensive omental and intestinal adhesions were separated from the cyst; pelvic and uterine adhesions very firm and difficult to separate, leaving a torn and bleeding uterus. An elastic ligature was therefore passed around it, the body amputated, treating the stump extraperitoneally. The cyst, which was multilocular was exceedingly friable, breaking to pieces at the least touch, in a number of places. Its walls were dark colored, from one-half to one inch in thickness. Microscopic section showed the cyst wall to be necrotic. Contents of the cyst were semisolid, of dirty gray color.

The appendix was adherent to the cyst, tense, enlarged and inflamed, containing an enterolith. The microscope showed catarrhal inflammation. The patient had lost considerable blood during operation and was pretty well collapsed when taken from the operating table, but gradually rallied under active stimulation and improved.

March 7 she showed undoubted evidences of double pneumonia and was in a critical condition for five or six days. She finally improved and made an excellent recovery.

The pneumonia occurring in these two cases was a mere accidental complication, though the lowered vitality and the forced recumbent position for weeks even before the operation, no doubt greatly contributed to its development.

The symptoms, in connection with the knowledge of the presence of an ovarian tumor in these cases, certainly justified the supposition that the complication was due to torsion of the pedicle; especially as the acute stage of the trouble had passed at the time they came under observation. Differentiation would probably have been easier at an earlier stage, as long as the inflammatory area in appendicitis was more localized. The fact that in torsion of the pedicle there is usually a rapid increase in the size of the tumor, marked shock and perhaps a less prompt rise of temperature than in appendicitis, would also probably be of considerable value in differential diagnosis at the outset, but at a later period the symptoms of the two conditions, at least in the cases in which torsion of the pedicle does not lead to a rapidly fatal termination, are so similar that it would scarcely be possible to differentiate them. Fortunately both conditions demand the same treatment *i.e.*, prompt operation; and a differential diagnosis has, therefore, more of a scientific interest than practical importance.

A fact worth noting is that there was undoubted inflammation of the cyst in all cases; in the last two cases this was particularly pronounced, as evidenced by the dark red discoloration of the cyst and the marked thickening of its walls and its unusual friability; in the last case they were actually necrotic in numerous places; conditions strongly resembling those found in torsion of the pedicle and in malignant disease. Malignant degeneration was seriously suspected, but the microscopic examination was negative on this point. There were no evidences of fresh hemorrhagic effusions into the cyst cavity in any of them. That this inflammation of the cyst cavity was not merely an extension by contiguity seems to be demonstrated by the fact that not only a portion of the cyst, the one in contact with the adherent appendix, was involved, but that the whole neoplasm seemed in a state of active inflammation with marked hyperemia and thickening of its walls, and in one, even at least partial necrosis. We must, therefore, suppose that the inflammation was caused by an infection from the appendix and not by a simple extension of the inflammatory process.

In conclusion, I wish to call attention to the method adopted in treating the stump of the appendix in the last two cases. It is so simple that doubtless it must have been used before me by other men, though I have been unable to find any account of it. It consists in tying the meso-appendix and the appendix separately near its insertion into the cecum. The meso-appendix is then stripped of the distal portion of the appendix down to its ligature, the latter cut off about half an inch above, and the stump covered with the freed meso-appendix, and attached by one or two superficial sutures. By this means the whole stump is completely buried under a layer of peritoneal tissue. This can be done with more rapidity than by inversion or covering the stump with a peritoneal sleeve, and it certainly answers the purpose in every respect. I have followed this plan in all my cases requiring appendicectomy during the last six months, where the meso-appendix had not sloughed away. It has been perfectly satisfactory.

SURGERY ONE HUNDRED YEARS AGO.

AN HISTORICAL STUDY

BY DR. GEORGE FISCHER.

DEDICATED TO THE GERMAN SURGICAL ASSOCIATION.

TRANSLATED FOR THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

BY CARL H. VON KLEIN, A.M., M.D.

(Continued from Vol. xxix, 1315.)

XIX.—DISEASES OF THE URINARY AND GENITAL ORGANS AND OF THE RECTUM.

Ischuria was studied with great assiduity by Desault, whose classic essays (*Jour. de Chir.*, i, ii) Richter transferred in part verbatim to his "Elementary Principles." They distinguished: 1. Paralytic retention of the urine, which appeared chiefly in old people, and from that arose the fact that the bladder lost the power of contracting. It might also be the result of venereal excesses, onanism and spinal injuries. External stimulants (Spanish flies, arnica and cold applications on the perineum) were valued, especially the continued use of the catheter to empty the urine. It seemed best to retain flexible catheters, stop up their openings and allow the urine to flow out every three hours; then about every sixth day to take them out and clean them. In case of a long continuance of the trouble it was advised that the patient learn to catheterize himself. 2. Inflammatory ischuria implied the inflammation of the neck of the bladder, the urethra or the rectum. It arises from stone, hemorrhoids, rectal fistula, contusion of the perineum, rheumatism and most frequently in a so-called obstructed gonorrhea. For this they used antiphlogistic remedies (calomel with opium), warm baths, poultices applied locally; after these the catheter, which, however, must not be left in place; in the worst event, puncture of the bladder. 3. Spasmodic retention of the urine, which had its seat in the neck of the bladder and was treated with antispasmodic remedies. 4. That from the obstruction of the urethra in consequence of foreign bodies. For the extraction of these J. Hunter devised the best adapted instrument consisting of a small tube, out of which two arms, spreading by means of a spring, were pushed forward. Desault also invented tweezers, almost like this, only they were larger and curved like a catheter. If extraction failed then nothing was left but to cut open the urethra. A wound in it healed readily if the urine were kept from it by a catheter. 5. Suppression of urine by strictures of the urethra. These were mostly in front of and near the bulbus, but might occur in several places. The causes were regarded as mostly "venereal inflammations of gonorrhea," until J. Hunter, in an accurate work on stricture, showed that it was not the fault of a special poison, but that constrictions might arise after any inflammation in the urethra. He divided them into permanent, which depended upon an organic defect, and spasmodic and mixed. The treatment was with bougies, "one of the most important inventions of recent surgery" (Richter), to which Hunter and Desault turned their full attention. The best bougies consisted of linen which was dipped in a mixture of wax, olive oil and minium, smooth and pliant; they did not break easily and were preferred to the usual wax bougie. Besides there were a countless number of compositions for the preparation of bougies. Catgut was also used; it had the advantage not only in distending the stricture but also in softening it, but was often hard to insert, caused severe pain and was easily worn out. Lead wire was also difficult to introduce and painful and easily took a wrong course. The patients soon became accustomed to the bougies, which were at first borne only a quarter of an hour, so that each day they were pressed in farther. From their premature use an abscess might arise at the stricture which either should not be opened at all or as late as possible (Desault); they might also take a false course. Perfect cure was seldom reported before three or four months and a relapse was not infrequent. If the treatment with bougies failed then Hunter recommended corrosives; he touched the stricture with a small piece of nitrate of silver every day or two until the probe pressed into the bladder. Desault regarded this treatment as uncertain and dangerous and never ventured to use corrosives. Richter also considered it unnecessary in most cases, since the bougie would finally press through. For abnormal duplicatures running clear through the urethra both surgeons recommended a turning of the catheter on its axis, but considered the so-called bougies médicamenteuses to no purpose in suppression of the urine. 6. There was an ischuria in consequence of swelling of the prostate occasioned by inflammation, abscess, stone, varices or scirrhus of the gland. If the dispersion of the inflammation was not quick enough the application of a catheter with a considerably bent point was necessary. But rather than apply force in such a case it was said to be better to decide upon a puncture of the bladder. The abscess lying at the surface of the prostate for the most part breaks spontaneously or the catheter opens it; situated between the gland and the rectum it was to be reached through the latter. If it opened into the bladder or urethra they left the catheter in position and injected a thinned barley water in order to wash out the pus. If they felt stony concretions in the prostate, which was, however, very difficult, an incision was made in from the perineum. In case of varicose swellings of the vessels of the gland catgut was the best. The most frequent tumor of the prostate was the scirrhous induration, as it occurred for the most part in old people who had had gonorrhea in their youth (Richter). For this they used thin silver catheters, rubbing with mercury salve, a seton in the perineum (Hunter) and as a last resort the boutonnière. This operation, the technique of which resembled that of today, found many opponents, among them Desault, who considered it for the most part superfluous and declared that it had, with right, sunk almost entirely into oblivion. Besides these main groups of ischuria, Desault described one which originated in the ureter as foreign bodies, inflammation, swelling or ulcers which compressed it. Since these causes were for the most part only discolored after death, art could do but little; further, the surgeon recognized suppression of urine as a result of retroversion of the uterus, prolapsus of the uterus and of the rectum and pregnancy.

In the most urgent cases of ischuria one must have recourse to puncture of the bladder. This operation in itself without danger, surgeons at that time employed much more frequently than at present, because they overcame the obstructions in strictures with greater difficulty and did not appreciate the uses of the boutonnière. Desault was a notable exception; to him cystotomy was so rarely indicated that in the Hôtel Dieu he found occasion to use it only once since the introduction of the catheter by a skilled surgeon must almost always be successful. They punctured the bladder from the perineum, above the pubes or through the rectum. The first, and at the same time the oldest method, was the most uncertain and the most dangerous and was almost entirely discarded. Only B. Bell advocated this operation, which Theden very often saw result fatally. The puncture above the pubes, probably first made by Méry in 1701, was regarded as easy and not very painful. It was almost impossible in that way to miss the bladder and injure an important part. The danger that the bladder in its evacuation would draw back from the tube of the trocar and an infiltration of urine follow, was obviated by the use of the long, somewhat curved trocar of Frère Cosme. Otherwise inflammation soon entered the wound, whereupon the cicatrization of the bladder with the abdominal muscles was occasioned and its contraction prevented. After a few days an elastic tube could be inserted. This puncture was absolutely necessary in swelling of the prostate, but was contraindicated in case of very fleshy persons. Recommended by Sharp and Heister it was regarded as the best method (Turner and Brown) even when the puncture through the rectum had been established. This was a discovery of Flurant. This operation, simple of itself, possessed the single danger of injury to the seminal vesicles. These were avoided, however, if the curved trocar devised by Flurant was inserted as deeply as possible into the rectum and the bladder perforated as high as possible and exactly in the middle. The tube which was left in the rectum naturally caused discomfort. In affections of the rectum and the prostate bladder puncture was just as little possible as for women, in whose case the vagina was punctured with success (Bell). Flurant's method was made known by Pouteau (1750), was introduced into Germany chiefly by Schmucker, and much later in England by Reid (1778). Reid indeed preferred it to the use of the catheter, whose unskilful application was much more dangerous. Soon it displaced the puncture above the pubes; Richter even called it the best, most comfortable, easiest and safest method. J. Hunter, Desault and Theden recommended it, while B. Bell rejected it entirely.

Desault traced *hematuria* either to the kidneys (stones and unnatural relaxation of the renal vessels) or to diseases of the bladder (varicose swelling of the vessels, fungous excrescences, stones and wounds). The inhabitants of tropical countries were especially liable to hematuria; Desault cured many soldiers who came back from the East Indies, by the use of the elastic catheter.

Renal calculi became the subject of surgical treatment as soon as the abscess produced by them formed an undulating tumor in the lumbar region. This constituted the indication for *nephrotomy, i. e.*, for the opening of the abscess and the extraction of the stone. This operation had already been recommended in a work of Hippocrates. Therein is stated that if pus has been formed in the kidneys, this must be removed with the gravel; then there was hope of saving the patient. If the diagnosis was certain an opening not too small must be made as early as possible, the finger introduced and the stone, if free, removed; fixed stones were allowed to be released by nature and for that purpose the hole was kept open by means of a pledget. The operation was first performed as it appears, by Marchettis (1696) on an English consul, for an abscess in the lumbar region, and it was warmly advocated by Rousset and Riotan, and then by Heister. He supported his position upon the fact that "renal wounds, if they are inflicted from behind and do not enter into the ventral cavity, are not always to be regarded as fatal." Later, Hevin, Troja and Earle commended it and C. C. von Siebold exclaimed emphatically: "When will the men who are so courageous and fortunate in the preservation of mankind in the exercise of the arts of surgery, again address themselves to the renal incision in order to remove the deadly stones from the kidneys as well as from the bladder?" It was a question whether the operation should also be undertaken in case an abscess was not present. Although one successful result was known ("Philosoph. transact.," 1696, art. ii, p. 188), they advised against it on account of the uncertain diagnosis, and because the soft parts lie too close, moreover an excessive hemorrhage was to be feared; it was difficult to find the stone and dangerous to loosen it with the knife if it was wedged in tightly (Richter, B. Bell). Only Lafitte considered nephrotomy also indicated, when there being no abscess, the stone could be recognized as a tumor by its hardness. *The extirpation of the kidneys* became a subject of discussion through an observation of the Englishman Fearon ("Med. communic.," i, London, 1784). He diagnosed a large tumor of the kidneys and had an inclination to extirpate it; the patient died. Then he performed the operation on the cadaver; without injuring the peritoneum he took out a kidney weighing two pounds and said that one could extirpate a diseased kidney if it forms a tumor on the outside. But Richter objected that in case of a living body hemorrhage and other evil consequences must be considered, and one must also have assurance that the other kidney is healthy and able to secrete the urine.

The study of diseases of the testicles languished; they were often confused. Monro, Sharp, Garengeot, and Pott, in particular, won credit for themselves in respect to these ailments. Surgeons showed an active interest in hydrocele, the treatment of which was enriched by many improvements. Only little by little were clear views obtained as to the seat of the infiltration of water. Garengeot distinguished accurately infiltration into the spermatic cord from that into the vaginal tunic, while Sharp rejected the finer distinctions as to its seat and only distinguished hydrocele of the tunica vaginalis from hydropsy of the scrotum. According to Heister, the water lay for the most part in the tunica vaginalis, sometimes in the proc. peritonei, and exuded from the "ruptured lymphatic vessels (vasa lymphatica)." Congenital hydrocele was also known to him. With anatomic accuracy, Pott distinguished the various seats of the disease, described hydr. of the tunica vag., hydr. cystica and that in the tunica vaginalis of the spermatic cord. To these three kinds Richter added hydrops scroti and infiltration of water into a hernial sac.

For *hydrocele* of the tunica vaginalis, the oval form, fluctuation, position of the testicle behind the tumor, etc., served for diagnosis; the transparency seemed uncertain, since the scrotum might be very thick and the water turbid (Sharp). A contusion, induration and inflammation of the testicle, cold and syphilis were considered the most frequent causes. A dispersion of the tumor by means of medication offered a prospect of success only in the case of children. In such cases cures were accomplished by purgatives and emetics, poultices of an infusion of rosemary or sage in wine or brandy, the application of compresses which were wet with vinegar, or a solution of sal ammoniac in alcohol. With the last mentioned remedy the English military surgeon, Keate (1788) would for the most part dispense with the operation. In the case of new-born children, Monro applied a piece of flannel saturated with smoke of benzoin, and Heister had a healthy person chew a piece of nutmeg and then blow frequently upon the scrotum. The operation was palliative or radical. While for Sharp, the former always sufficed, and the radical operation appeared too dangerous, Richter preferred the palliative operation only in very large hydrocele, in case of doubt as to whether the testicle was diseased and in complications with other diseases of the testicles. If one had assured himself of the position of the testicle, a lancet, or better, a trocar was inserted below and in front, and the water allowed to escape, but not all at once. The lancet should have the preference in case of slight infiltration of water in complications with hernia and sarcocele In such cases they severed the skin and then inserted the trocar into the exposed tunica vaginalis (B. Bell). J. L. Petit first called attention to the evil consequences of perforating a blood vessel in the spermatic cord.

In the radical operation it was necessary to destroy the cavity of the tunica vaginalis, since they either cut this out or induced inflammation in it in order to bring about an adhesion with the testicle. To that end there were a number of methods, of which Richter asserted that each deserved preference in certain cases, no one of them in all cases. For most cases of hydrocele the incision was regarded as the best method. The tunica vaginalis was split throughout its whole length to the base of the scrotum (Monro) and a pledget, or a piece of fine linen spread with digestive salve, introduced. Filling with lint (Lassus) occasioned too great pain. Although the incision was decried from many sides as dangerous (Wiseman, Cheselden and Earle), which Pott, however, denied, and although suppuration of the testicle (Sharp) and a fatal result (Acrel and Monro) were noted, still these methods were for the most part in use at the end of the century. If critical conditions ensued Richter laid the blame on the surgeon; he and also B. Bell defended the incision against all other methods. If the tunica vaginalis was unnaturally thick and hard, its extirpation, already known to the ancients, had given good results. Douglas reintroduced it (1755); Saviard, White, Gooch and Louis followed him. Not infrequently the results in this way were less serious than in a simple splitting of the tunica vaginalis (Bertrandi). A third method, taken up by Warner (1774) and Theden, was the insertion of a tent, which was daily renewed and allowed to remain until sufficient inflammation was induced. It was unsafe and irritated the testicles more than the tunica vaginalis. The injection of irritating fluids found many advocates. It appears to have been first done by the Marseilles surgeon Lambert (Œuvr. chir. 3. Ausg. 1677); he used a solution of sublimate in lime water. The method appears to have been long forgotten until Monro appears to have reintroduced it and first injected alcohol and afterward wine. Alcohol was a deceptive remedy; when Sharp had injected an ounce of it an abscess on the scrotum resulted. Sabatier cautioned against it and used the weaker red wine. Solutions of nitrate of silver, alum, vitriol, sugar of lead, lime water and simple cold water were also used. The liquid was allowed to flow out again immediately, and care was taken that nothing remained; the quantity depended upon the size of the tumor. Voices were raised for and against injections. Richter considered them not safe enough, since B. Bell had reported one failure in nine cases, and brought forward as a disadvantage, that sometimes very severe inflammation and suppuration resulted; he limited them, therefore, to simple, slight hydrocele. Many experiments were made in France and their results reported; fewer, in England. Earle (1791) defended this method, and said in its favor that it induced only very slight inflammation which never led to suppuration, hence could be used for every constitution and at all ages. It also has neither obstacles nor dangers, and in case of relapse can be immediately repeated. He used port wine with a decoction of rose leaves (2 to 1) and described twenty-seven cases. He successfully treated large nodules and mucous sacs at the patella with the same injections. Desault also preferred the injection for congenital hydrocele. By means of a cushion he lifted up the communication between the abdominal cavity and the tunica vaginalis, punctured it and injected red wine, and had the patient wear a truss that the peritoneum might not enter the lacerated tunica vaginalis. Hydrocele, sometimes also hernia, which was usually complicated with it, was radically cured by the occurrence of adhesions in the cavity. Zenker appears to have introduced the Earle injections into Germany; at least he made them, with success, of equal parts of water and medoc, in the Berlin Charité in January, 1795. The method was later forgotten there, for Rust and Gräfe operated with the incision. Pott valued and preferred to the incision, as one of the most excellent remedies, the seton, which Lanfranci first used and Paré among others had recommended. He used it many years with successful results, at first in the form of a wick of cotton, later of sewing silk, which irritated less. Pott asserted that by this method the tunica vag., simply affected with inflammation, adhered to the testicles, but suppuration never ensued. Even in his lifetime the general voice was raised against the seton; Sabatier first interested himself in it again. The technique of the operation was considered too inconvenient and excessive suppurations and aggravated conditions were observed to follow (B. Bell, Earle and Richter). Cauterization, by which the ancients opened the tunica vaginalis in its entire length, was introduced through Else, a surgeon in the Thomas Hospital in London (1770) and Dussaussoy in Lyons (1787), but only for the purpose of inflaming the tunica vaginalis. A paste of lapis causticus was selected and with it a scab the size of a louis d'or was made, opium also being applied (Acrel). The pain and subsequent suppuration restrained many surgeons from cauterization.

Under "cystic hydrocele" (hydr. cystica) was understood the tumor which occurs especially in children and consists of an unnatural sac in the cellular tissue of the scrotum, for the most part in the region of the middle of the spermatic cord. Below and above it the latter could be freely felt. Resolvents did not suffice, but a simple puncture or, in adults, the splitting and excision of the sac led to a cure. From this species, "hydrocele of the tunica vaginalis of the spermatic cord" was distinguished. In the latter the water collected in the cellular tissue which immediately surrounds the spermatic cord; wherefore the tumor was also called edema of the spermatic cord. This rarest form could either attack only the lower part of the spermatic cord and extend as far as the abdominal ring, or it entirely filled with water the cellular tissue which passes with the spermatic cord through the abdominal ring. They opened the tumor.

Diseases of the testicles were so little the subject of anatomic investigations that under *hematocele*, which name originated with Heister, was understood an infusion of blood into the cellular tissue of the scrotum and the tunica vaginalis, as well as into the substance of the testicle. The second form developed after the palliative operation for the common hydrocele if a large blood vessel was punctured, or after a contusion. They sought to resolve small tumors by purgatives, solutions of sal ammoniac and by external pressure by means of a suspensory; larger ones were lanced or cut out. In the third form, which Pott discovered, the testicle was swollen and so soft that it could be pressed flat without pain; thin chocolate-colored blood was exuded into its substance. Castration was here the only remedy, although for years the swelling often occasioned only slight inconvenience.

Under *sarcocele* was understood an induration and swelling of the testicle, and all neoplasms of the same were classified in the following manner: If the tumor was painless, it was regarded as benign scirrhus; if painful, as malignant and latent cancer; if ulcerated, as open cancer; sarcocele arose after contusion from venereal, scrofulous and gouty causes, among others. In regard to its treatment, J. L. Petit was the first who demonstrated the possibilty of a cure of a syphilitic testicle tumor by anti-syphilitic remedies. Naturally they then sought to contend against other dyscrasias by corresponding medication. Yet *castration* remained the surest remedy, to Sharp one of the saddest operations and one which was allowed only in scirrhus and cancer of the testicle, which was very liable to relapse. He postponed the operation until the tumor threatened to become malignant, while most surgeons would castrate as soon as possible after pains arose, since one could never know whether or how long the swelling would remain benign. Only when the pain was no longer local and the spermatic cord and inguinal glands were also indurated they advised against the operation. Volumes have been written on the technique of castration, since there were few operations which in the last century were so variously modified. As a rule a large longitudinal incision was made from the abdominal ring to the base of the scrotum, or only a small incision above the spermatic cord, in order to expose the latter, and the incision was further enlarged (le Dran and Monro.) Then the spermatic cord was isolated from the cellular tissue, bound and severed, whereupon finally the testicle was removed. The oldest method was to bind the entire spermatic cord. In Heister's time they applied a simple or double ligature around the vasa spermatica close to the abdomen before they cut off the testicle. A few surgeons loosened the testicle from the scrotum after applying the ligature, but waited a few days until it began to putrefy in order to be able to separate it so much the more safely. The stricture of the entire spermatic cord had a few successful results (Sharp, Morand, Acrel, Pott and Schmucker; Mursinna thus performed sixty-four castrations and observed trismus arise only twice). But severe pains (Bell) were observed and trismus with fatal results (Morand), convulsions (Bilguer), and epilepsy (Theden). Views upon this kind of operation were widely diverse. J. L. Petit rejected the ligature of the spermatic cord entirely, since the hemorrhage from the small arteries was only slight, and preferred the isolated torsion of the vessel, and le Dran and White did not bind the spermatic cord but only rolled it between the fingers. A few would draw the thread only tight enough to close the artery (Bell and Lassus); others bound the artery alone (Monro, Cheselden, Z. Vogel and C. C. von Siebold). Richter laid down the following rule: If the spermatic cord must be cut off close to the abdominal ring one should bind the whole mass with a thread not too thick; if it is to be separated far below the abdominal ring one should endeavor to bind the artery alone. It was always advisable to cut the spermatic cord as far down as possible because it contracted so much. Since many accidents might arise from the straining of the spermatic cord importance was attached to freeing it as far as possible from the surrounding parts so that it could contract unhindered (Maréchal). Most surgeons arrested the hemorrhage by ligature, while Theden recommended the tampon, on account of epileptic attacks. Of course in case of very small arteries it was often possible to stop the blood by continued finger pressure, but it might be a question of a vessel of the size of the art. brachialis (Sharp), and a dangerous hemorrhage might arise after compression alone (Pott). They advised attempting a healing by prima intentio. A radical method of castration, as that of the Austrian surgeon Zeller, was not to be thought of. Proceeding from the idea that the extirpation of the testicle at the base of the scrotum accomplished nothing, he seized the diseased part along with the testicle, drew them backward and severed sac and testicle at once; the hemorrhage was stopped with ice-cold water.

In *varicocele* they distinguished cirsocele as varicosity of the spermatic cord and testicle, from varicocele, as an enlargement of the veins of the scrotum. Richter believed that the tumor was not based upon a varicose swelling of the vessels of the spermatic cord alone, but that the spermatic vessels in the epididymis and the testicle also swelled. The feeling as of a bunch of angleworms could not be derived from distended veins, and the eventual atrophy of the testicle could only be explained in that way. J. L. Petit said that a predisposition to the development of varicocele was to be found in the mechanical condition, that the vessels of the spermatic cord ran upward over the os pubis as the cable of a well across the roll, and that the testicle works as the bucket of the well. They named as causes, a torpidity of the spermatic vessels (in onanism), an increased afflux of liquids (in suppression of coitus), contusion, obstructed reflux of the fluids (bad truss). The disease could never be entirely removed, but an exacerbation could be prevented. The continuous wearing of a suspensory, cold lotions, the application of alum solutions and of naphtha served to that end. In case of very severe pain, or threatened rupture, one should castrate (Gooch). The stricture of the veins, according to Celsus, as well as the puncture of the vessel with a lancette, according to Heister, and the extirpation of the varicose veins, were regarded as too dangerous. In case of healthy testicles, Pott rejected every operation. Observations as to cryptorchism were made as early as the seventeenth century. Petri de Marchettis[1] found in a child one testicle "near the pudendum," the other in the scrotum, and advised against any treatment, when a colleague would bring the supposed tumor to suppuration ("Chir. Obs.," lviii, Uebers., Nürnberg, 1673). Felix Plater described three cases and the confusion with hernia ("Obs. Sel. Obs.," 47, 1680). Pott offered new observations. He was aware that it was subject to all the diseases of the testicles, and that it might be regarded as a rupture, and could become inflamed through pressure of a truss, and from an injury. He observed it grew scirrhous and cancerous, and also described the successful extirpation of a cancer. Plenk likewise called attention to the distinction between inguinal hernia and bubo, and taught that cryptorchism with defective treatment might inflame, suppurate, harden and develop into inflammation or cancer.

Richter considered the operation for *phimosis* as inadvisable, in case urination was not obstructed "until the patient wished to fit himself to undertake coition, for which purpose, as C. C. von Siebold relates, young Frenchmen had the frenulum cut. A few surgeons preferred circumcision to a simple splitting, because after the latter misformed flaps remained obstructing coition (Richter); others preferred the simple incision and limited circumcision to a thick and hard prepuce (Sharp). The latter was made with bistoury or shears, the longitudinal section with a bistouri caché, with which the strongly contracted foreskin was perforated above in the middle and from within outward, and was cut through from the back, forward. Then the flaps at the sides of the incision were cut off, since they often occasion much trouble. At each bandaging a pledget was pushed into the upper corner of the incision; it was not sutured. A number of bistouries with the most widely differing pointed covers were constructed for this operation (Petit, B. Bell, Bertrandi, Lotta and others). The incision was also made at the side of the gland (B. Bell and Arnemann) or only the inner layer of the foreskin was cut, as almost the only place of contraction (Foot).

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[1] This surgeon is today so little known that several of our recent handbooks relate the story of how Marchettis had extracted a pig's tail which Göttingen students had stuck into the anus of a Jewish girl. Marchettis died in 1678 and the University of Göttingen was founded in 1734.

(To be continued.)

SOCIETY PROCEEDINGS.

Chicago Ophthalmological and Otological Society.

Regular meeting held Nov. 9, 1897, in the Stewart Building.

Dr. MONTGOMERY in the chair.

There were twenty six members and visitors in attendance. The minutes of the last meeting were read and approved. Drs. A. E. Bulson, Jr., of Fort Wayne, Ind.; E. A. Lawbaugh of Chicago, and J. B. Taylor of Bloomington, Ill., were elected members.

Dr. PIERCE opened the discussion on "Chronic Suppurative Otitis Media." He said that a proper comprehension of the factors involved in the treatment of chronic suppuration in the middle ear may best be arrived at by briefly considering: 1. the pathologic processes which induce suppuration in the tympanic cavity, comprising the micro-organisms involved; 2, routes of invasion, and 3, the conditions which prevent their escape or destruction. These three points were discussed seriatim. In considering the treatment he had come to believe from experience that many cases of catarrhal inflammation assume a suppurative or chronic form because of ill advised treatment. One of the most prevalent errors in this regard is the empiric and illogic use of ear drops, douches and inflations. The author showed that this was bad treatment. The first condition to be met in chronic, as well as acute otitis media, whether suppurative or catarrhal in form, is drainage. There is no other factor which tends to perpetuate a suppurative ear disease so frequently as lack of drainage or retention of discharge. At his clinics he rarely uses injections. The ears are cleansed by carefully swabbing away secretion by means of sterilized cotton pledgets. These pledgets are kept constantly on hand. The external auditory canal is then packed with a strip of sterilized gauze, care being taken that it barely touches the membrane.

With reference to douching the author said there are a few cases which demand irrigation, and in these the ear is cleansed through the Eustachian tube whenever possible. When the affection is bilateral he uses Greuber's method. A syringe with a blunt point holding two ounces is introduced into the nostril. The other nostril is closed by the thumb as in politzerization. The patient is told to blow out the cheeks forcibly when the contents of the syringe is forcibly ejected. In this way the solution is forced through the Eustachian tube into the middle ear through the perforations into the external auditory canal.

Surgical treatment.—When the discharge continues after a month's treatment by the method described, the author resorts to operative interference, providing there is no indication of polypous formation or caries. In the case of a polypus being present he snares it away immediately, or in the case of opposition to surgical interference on the part of the patient, he reduces it by means of sesquichlorid of iron or alcohol. In his hands syringing of the attic by means of Hartmann's canula has proven unsatisfactory in almost all cases.

The author then touched on a few practical points that had been impressed upon him by his own experience. As regards narcosis, chloroform or a general anesthetic should always be used in those cases where any considerable amount of the membrane remains, for here the pain is usually intense during the operation, and hemorrhage from the granulation is very likely to delay manipulation. Cocain may be relied on in those cases where the tympanic membrane is largely destroyed and where granulation tissue is nearly altogether absent. The attic can be best cleaned by the attic scoop. The after treatment should be the same as that pursued before operation, namely, packing with gauze drains. He had seen cases that have run along for twelve years or more in which suppuration ceased in two months after the operation.

Dr. EDWARD T. DICKERMAN referred to the varying susceptibility of different patients to middle ear disease, and attached importance to the condition of the nasopharynx in these cases. He had found that in cases where the Eustachian tube was blocked by nasal growths that ear disease was far more common. Regarding treatment he agreed with Dr Pierce that the dry method was by far the best, and he believed that acute cases would never become chronic if properly treated. The bone which most often necroses is the incus, because the blood supply is entirely from one small artery which is easily occluded, any slight pressure from swelling being sufficient. In these cases of necrosis a thorough curetting is absolutely essential and due care must be had for the facial nerve, which is easily injured by instruments or any escharotics. He had found that the improvement in hearing in most of the cases was marked.

Dr. HENRY GRADLE.—A fair experience has shown me that the gauze drainage advocated by Dr. Pierce is the speediest treatment at present known in acute inflammation of the middle ear, but I have never used it as yet in the chronic form. In discussing the treatment of chronic suppuration of the middle ear, I wish to emphasize certain principles which I fear are not yet appreciated by all practitioners. In general surgery it is well known that the tissues will invariably recover from pyogenic infection if the pus can escape freely, and there are no untoward conditions present, as for instance, foreign bodies. The same is true of inflammation of the middle ear. For anatomic reasons there is, however, much liability to the damming up of the pus with consequent persistence of suppuration. The reasons are partly obliquity of the meatus, partly the complex architecture of the tympanic cavity, the liability to the formation of occluded crevices by swelling of the mucous membrane or granulation tissue, and particularly the partial occlusion of the attic by adhesions and newly formed bands of tissue. All these conditions interfere with free drainage of the pus, and thereby favor secondary infection with putrefactive bacteria from the meatus. Inspissated pus moreover acts as a foreign body and thus maintains continued suppuration.

A valuable sign of retention of pus in the cavities of the middle ear is its odor. Freely escaping pus has no fetid smell, while a foul odor indicates imperfect drainage. We can make use of this important criterion to test the efficacy of treatment. On the basis of much observation of such cases, I can state emphatically that any treatment which does not remove the odor will never lead to a cure of chronic purulent otitis, and that, conversely, whenever the odor has been removed the tendency to recovery can be at once observed. A small number of cases may not entirely heal under the treatment which removes the odor, but this is a rare exception. On the other hand, the first principle stated has no exception whatsoever.

My treatment always begins with the free use of the syringe. A fine nozzle protected by a bit of soft drainage tube must be carried far into the meatus. Thorough syringing alone cures many cases. I can say this on the basis of some cures accomplished by syringing followed by the experimental use of various powers like iodoform, which I since learned to be absolutely inert. But syringing will not cure all cases, nor is it the speediest form of treatment when employed alone. All uncomplicated cases of purulent otitis will heal under the use of boric acid lightly insufflated after thorough cleansing. In a small percentage of instances a single insufflation has resulted in a permanent cure. If the cure is delayed there are complicating conditions present which we must inquire into, and these do not yield any more readily to the various substitutes recommended for boric acid. What we wish to accomplish by insufflation is to put into the ear a depot of a non irritating antiseptic which checks bacterial activity on the surface of the tissues. Boric acid answers these requirements so fully that I can see no reason for any search for substitutes for it. The addition of any antiseptic fluid to the water used for syringing appears unnecessary to any one familiar with surgical pathology, and many trials in former years have convinced me of the utter uselessness of all fluid antiseptics (including peroxid of hydrogen). Insufflation through the Eustachian tube I formerly used as a routine measure, but I have failed to see the least delay from its omission.

If these measures do not remove the odor after one or two treatments, other means must be adopted. Irrigation through the Eustachian canal has not proved of any use in my hands for the purpose of removing pent up secretion of inspissated pus. I have learned to regard, however, as very valuable, irrigation of the tympanic cavity and attic through the intratympanic canula. Hartmann's rubber tube is too thick. I use a silver tube, closed at the end, with lateral eye attached to a ten centimeter piston syringe. Its efficacy is shown in suitable cases by the appearance of grumous pus collections in the basin, and the disappearance of the odor. It is often painful to the patient, but I have never seen any harm done by its use. Intolerance of the patient may require a repetition of its use at different sittings until all odor is removed. In some instances, in which no complicating lesions existed, but where the intratympanic canula failed to dislodge the retained pus, I have made use of fluids capable of penetrating better into the small crevices than water on account of their lowered surface tension. I use first a solution of salicylic acid in alcohol and ether, and follow this by carbolated glycerin 1 to 10. A number of times my reasons for the employment of these solutions were justified by the subsequent disappearance of the odor and the progress of the case. I have also made attempts to dissolve carious bone by baths of hydrochloric acid (5 per cent.), and to digest obstructing granulation tissue by acid pepsin solutions, but am not convinced that I have ever accomplished anything thereby. If these modes of treatment fail to remove the odor, we must attack surgically those conditions which interfere. Polypi must be removed, although small ones may sometimes disappear by absorption under such treatment without delaying the cure. Visible granulation tissue is to be curetted. Carious bone must be cleansed by the curette of adherent fragments of tissue; but when cleaned it does not interfere with recovery, as I have learned repeatedly. Small openings in the membrana tympani, or in Shrapnell's membrane, may be enlarged, although I have but rarely seen any benefit from this procedure. When persistence of the odor indicates the inefficiency of the treatment, I attempt to clear out, with the snare and curette, the entire tympanic cavity, removing as much as possible of the ossicles, so as to expose the attic freely. I have, however, not concluded to do a simple Stacke operation, for the reason that Stacke himself found that in most cases requiring this operation, the mastoid also is involved. Whenever, therefore, I find that I can accomplish nothing by the minor surgical measures, I perform the Zaufal operation, and convert the antrum, tympanic cavity, attic and meatus into one cavity. Of all complications, the most important is the existence of cholesteatoma. If with this condition, the odor can not be removed, a radical operation is required. If the deodorization can be accomplished the cases generally heal, and may stay cured for months or years, but relapses rarely fail to set in.

As a rule, otorrhea diminishes steadily until cured, after the odor has been removed. There are, however, a few rare cases where many months may be required for this result. Generally the treatment will not extend over a longer period than four to six weeks at most.

There are some cases in which no odor is present when first seen and which still prove very rebellious to treatment. They are characterized by a very profuse, stringy, muco purulent secretion which presumably comes from the mastoid antrum. In instances of this kind in which there are no indications for naso pharyngeal treatment, I have often found it possible to influence the secretion very markedly by the use of tannin dissolved in glycerin, 1 in 4, retained in the ear for hours. Repeated trials have shown me the efficacy of this treatment under these conditions, but it is not infallible. Some of these cases with profuse, stringy secretion occur in children with a similar profuse chronic purulent rhinitis. This disease has been described by Bosworth as a special type occurring in children, and I can confirm his description fully, but must differ radically from him regarding its ultimate outcome. He considers it the first stage of ozena. I can not admit this at all, as I have watched some of these children for months, partly after the efficacious treatment, partly after treatment insufficient on account of frequent interruptions. Moreover, a few cases of ozena which I and others have been able to catch in their incipiency began in an entirely different manner. This chronic purulent rhinitis of children can be cured by the persistent use of the nasal douche kept up for many months. The same irrigation extended into the Eustachian tube, will also cure the corresponding form of middle ear disease. When both ears are involved it is easy to use the Politzer bag, filled with saline solution, instead of air. When the disease is one sided the more cumbersome Eustachian catheter must be employed. With such irrigation boric acid insufflations must be combined.

It may not be amiss to add that hypertrophy of the pharyngeal tonsil is not only a frequent cause of inflammation of the middle ear, but accounts also for many relapses observed in childhood, and that in every case of chronic otitic suppuration we must attempt to restore a normal condition of the nose and pharynx.

Dr. TILLEY is a firm believer in syringing in these cases and thought it of more value than the dry method of treatment. He uses a bulb syringe similar to the one used by dentists, and injects the fluid into the tympanic cavity. He finds a solution of carbonate of soda most valuable for syringing. He considers constitutional measures of the greatest importance and uses the solid iodid of iron and cod liver oil in nearly all his cases. The nasal condition is also carefully looked after.

Dr. WHEELOCK agreed with Dr. Gradle that the odor of the discharge is a good index to the condition of the ear. He syringes most of his cases with peroxid of hydrogen, allowing it to remain in the ear for some minutes. Where granulations are present he finds that they can be most comfortably removed with absolute alcohol. He has been recently trying a 0.5 per cent. solution of formalin instead of the peroxid, and finds it very satisfactory. It seems to have a more penetrating effect than any other solution. Patients are instructed to syringe the ear with at least two quarts of hot water, at home, by means of a fountain syringe held a few inches above the level of the head.

Dr. COLBURN uses peroxid quite frequently, but called attention to the dangers of using it in cases with perforations because of the pressure exerted by the gas in the middle ear.

Dr. COLEMAN also uses peroxid freely. For some time recently he has been using the Politzer method of inflation in combination with cleansing the ear and considers it very satisfactory. He does not think there is any danger of reinfecting the ear from such treatment. When granulations are present he destroys them with chromic acid.

C. P. PINCKARD, M.D., *Secretary.*

The Eighth Italian Congress of Internal Medicine

Naples, October 20 to 24,

was opened by Prof. G. Bacelli, who urged further work in the line of the intravenous administration of heroic medicines, "first practiced in Italy, but now finding adherents all over Europe and in far America." Quinin was the first thus introduced into the system, and many a patient in the preagonic stage was saved by it. Then bichlorid of mercury was tried and afforded marvelous results, not only in syphilis of the brain and spine, but even in the gravest disturbances from pathogenic micro organisms and their toxic products, especially influenza. Then iron was attempted and other substances will certainly follow, although the endovenous method is obviously for exceptional use.

Prof. E. Maragliano described the important information to be learned with the Roentgen ray in regard to the thoracic organs, especially in incipient disease.

In his address on "Leukemia," Professor De Renzi went over much of the ground covered by the work of the Chicago Pathological Society (*vide* JOURNAL, Vol. xxiv, Nos. 4 and 25; also "Leucocytosis," Vol. xxix, No. 10, and editorial in Vol. xxviii, No. 20). He stated in conclusion that leukemia is not a morbid entity, but a symptom connected with physiologic and pathologic leucocytosis. Two factors are necessary, the inciting agent and a predisposition on the part of the organism. Given this predisposition to the exaggerated production of leucocytes, several micro organisms are capable of acting as the determining factor, hence the variety of types of leukemia, but an extremely susceptible nervous organization is common to all. Pasteur and others have found the staph. pyog. aur. and alb. and the bac. coli in leukemia, but Pane in his recent extensive research failed to discover any micro organism, even with inoculations of dogs and monkeys. De Renzi has observed typical anemia infantum pseudoleukemica in adults; it is an actual scourge at Barano d'Ischia. At present much importance is attributed to the neutrophile mononuclear leucocytes, but this importance is still dubious. Pane considers the granules of the polynuclear leucocytes physiologic, as an aqueous instead of a glycerin solution of eosin renders them acidophile. The existence of intermediate forms between the eosinophile and neutrophile granules precludes any deductions from them, and it is better to depend for the diagnosis upon the permanent multiplication of the white corpuscles and the hyperplasia of the hematopoietic organs. The theory of increased activity on the part of the cytogenic tissue (Virchow, Bizzozero), is confirmed by this hyperplasia of the hematopoietic organs, also by the abundant destruction of the leucocytes in the organic transformations, especially since Hurbaczewsky has succeeded in differentiating the albumin from the nuclein transformations, the first producing oxyproteic acid and urea, the latter uric acid. Recze found an increase of five to eight times as much as normal in his cases, and when uric acid could not be found, it was substituted by xanthin, hypoxanthin, Rovida's hyaline substance and Lilienfeld's nucleo. The erythrocytes are affected in leukemia, showing degeneration either as poikilocytosis or in the endoglobular changes described by Maragliano. Fever may or may not be present; it has no special characteristics. There is no prompt and radical cure for leukemia, but arsenic may prove beneficial; organotherapy promises still better results, and possibly Tesla's currents, which promote to a remarkable extent the organic oxidations without increasing the consumption of albumin.

Marchiafava considers leukemia and pseudoleukemia distinct affections, the latter a secondary infection favored by profound anemia. In the ganglion and intestinal variety the spontaneous increasing and decreasing in size of the ganglion tumefactions is still an inexplicable phenomenon. The internal ganglia may be the first affected; in the thorax it is the mediastinal and peribronchial ganglia, the process extending to the lungs or pleura. In the abdomen it is the mesenteric or retroperitoneal, or both. When the lymphoma invades the walls aneurysmatic dilatations are noted, while cancer and tuberculosis produce stenosis. The importance of the splenic tumefaction in splenic anemia, which must not be confounded with splenic pseudoleukemia, is evidenced by the complete recovery after extirpation of the spleen, in the early stages. Arsenic is still the most effective treatment of pseudoleukemia. Surgical treatment of the ganglion tumors is not to be advised. Bozzolo reported a case in which these tumors disappeared spontaneously, but reappeared ten years later, followed by leukemia. He remarked that leukemia of the skin is characterized by papulous nodules, which are often the first symptom of leukemia. He recommends subcutaneous injections of sodium arseniate in large doses. Pane communicated the results of the inoculation of rabbits with strong doses of pneumococci after immunization. He found intense hyperplasia in the bone marrow and in the spleen. Before death there was a great preponderance of lymphocytes and the white corpuscles were much more numerous than normal. He added that these experiences might prove valuable in differentiating acute leukemia from the leucocytosis encountered in certain infectious diseases. De Semo reported extremely favorable results from calomel in very small doses in twenty cases of pseudoleukemia or infantile splenic anemia.

The address on "Cardiac Neuroses" was by Silva of Pavia, who remarked that we no longer include angina pectoris and Basedow's disease in this list. He explains the etiology of paroxysmal tachycardia by studying the connection between the clinical manifestations and the physiologic data, the former bearing a striking resemblance to the attacks of tachycardia that affect workmen or mountain climbers making unwonted efforts, due to transient neurosis of the pneumogastric. We know that weak excitation of the pneumogastric, when it does not calm the tachycardia, exerts an antitonic action upon the heart and also, on the other hand, that slight excitation of the sympathetic increases its accelerating function. According to Murri, the force of the systole is in direct proportion to the amount of blood contained in the cardiac cavities, and thus, in tachycardia, when the cardiac tonus is diminished and the heart dilated, we have an element which easily explains the increase in the number of the cardiac contractions. The pneumogastric begins the attack; after this the poisons produced by the excessive activity of the heart, prolong it. The facts that compression of the pneumogastric at the neck arrests the tachycardia, and that digitalis is extremely efficient in this affection, demonstrate the correctness of this theory, which attributes the clinical phenomena to the influence of the myocardium and the pneumogastric, especially as we know that the chief effect of digitalis is precisely this increased tonicity of the cardiac fibers, which is ascribed by many to excitation of the pneumogastric. The abrupt termination of the attack is owing to the excitation of the intracardiac ganglia and the cardiac terminations of the pneumogastric, by the cardiac dilation and stasis, which stimulate the pneumogastric center by reflex action, and this in turn brings the heart back to its normal condition. Cardarelli's fine monograph on bradycardia attributes the affection to arterial lesions. Paroxysmal bradycardia may prove fatal during the first or later attack, but cases have been known to last fifteen years, although the average is three and a half. The treatment for cardiac neuroses is the same as for others: Hydrotherapy, then massage, electro- and climatotherapy. He concluded with the remark that the myocardium is always involved in purely nervous cardiac troubles, as there is no longer any doubt in regard to the trophic action of the pneumogastric on the musculature of the heart. Calabrese confirmed the theory in regard to the part played by the pneumogastric in the evolution of bradycardia by the case of a young woman in good health until a sudden attack of syncope and epileptic symptoms, pulse 27, nausea, etc. Atropin raised the pulse to 60, but it grew slow again as soon as the atropin was suspended. Digitalis accentuated the symptoms. Tedeschi sustained Kelly's theory, which attributes paroxysmal tachycardia to disturbed nutrition on the part of the neurons; the connection between the terminal ramifications being suspended, the vagus loses its tonic action upon the heart and tachycardia appears; it disappears whenever the cellular nutrition is regulated again. Gay remarked that in certain cases the tachycardia is one commencement of angina pectoris, and it requires the suppression of the cause (tea, coffee, tobacco) and prolonged medication, strychnin alternating with nitroglycerin, milk diet, etc.

De Renzi has confirmed in diabetic patients the results attained by Kossel *in vitro* in regard to the production of carbohydrates when nuclein is treated with diluted acid. He administered nucleinic acid, nuclein and thymus in diabetics during the complete absence of glycosuria and in every case not only was the elimination of uric acid increased but the glycosuria reappeared, showing that nuclein must also be considered as a source of carbohydrates in the organism.

The beneficial effect of Tesla's currents was proclaimed not only in leukemia, but in various diseases due to torpid metabolism ("experimental results surprising"), uricemia with eczema, etc. Lucibelli announced that the amount of fats eliminated in the urine of eight patients decreased one-half under treatment with the Tesla current. Tedeschi called attention to the splenomegalia which he has observed as a pretubercular symptom, the first to appear, and denoting a rapid and severe tuberculous infection. His cases were all convicts in prison. He considers it the expression of the struggle going on in the organism to throw off the infection. As the conclusion of much research Pittarelli denies the existence of physiologic glycosuria. Boeri announced that experimental lesions of the vagus lowered the limit of the destruction of glucose in the organism (dogs) (from 4 to 6 grams per kilogram, ingested fasting, and 2 to 2.5 grams injected into the peritoneum), to 0.75 to 1 gram, with neuritis of the central stump. Similar results were obtained with ligature of the choledochus but none with lesions as in those without. The decrease in the limit can not be due to modifications in the general metabolism, as it is only produced by lesions of the vagus when the sugar is introduced through the peritoneum. With subcutaneous injections the limit remains unchanged (4 grams). He considers it probable that this function is exercised by the mediation of the liver, which fact is confirmed by the lowering of the limit with injections into an intestinal vein, while with injections of the jugular vein the limit does not vary.

A. Jovane stated that experimentation with dogs, and tests of sixty small children, necropsies of others, etc., had demonstrated that the prejudice in regard to the incompatibility of calomel with acids was unfounded. He administered the calomel with lemonade made with citric, tartaric, hydrochloric acid, orange juice, salty bouillon, chlorid of ammonia, etc., and there was not the slightest intolerance, and no lesions were found in the alimentary canal of moribund children thus treated, showing the non-formation of corrosive sublimate in the combination of calomel with the chlorids, acids and albumin. Massalongo classifies chronic arthropathy into infective, dyscrasic, toxic and nervous. Of all the theories advanced in regard to the etiology, he considers the reflex theory of Marinesco and Brissaud the most in harmony with the anatomic alterations. Chronic articular rheumatism he divides into four varieties, the infective, dystrophic, nervous and mixed. Various facts, among them the frequent discovery of peripheric neuritis both in the infective and nervous varieties, tend to establish the nervous origin of arthropathy. The most recent histologic investigations however point to the central rather than the peripheric system, and he believes that improved technique will in time discover in the spinal cord the primary cause of the affection. The exaggeration of the tendon reflexes is a special phenomenon of this infective group, which he has observed in 45 per cent. in the infective, 85 per cent. in the nervous and 60 per cent. in all. Zagari asserted that uric acid is not found in the blood and urine of patients with gouty arthropathy; that its administration does not produce the affection nor increase it if already existing; that there may be an excess of uric acid in the blood and urine from other morbid processes without the production of gouty arthropathy and that increasing the amount of uric acid by the administration of nuclein combined with compression and traumatisms of the articulations does not lead to the evolution of the affection. He considers uric acid the companion of gouty processes, but the deposit of uric acid in the interior of the cellular nucleus after ligature of the ureter or an injection of uric acid, has convinced him that these processes depend upon some anomaly in the life of the cellular nucleus in some special tissue. As the metabolism is disturbed, the essential product of the metabolism of the nucleus, uric acid, is deposited in the cell. Bacelli stated that the fundamental facts in chronic arthritis are the alterations in the white tissues and the disturbances in the lymphatic vessels. He mentioned as an early symptom "granulous pharyngitis," also an alteration in the periosteum over the anterior surface of the tibia, with edema, sometimes painful, with uratic deposits below. He has been using oxygen for a long while with fine results in the gouty forms, and also in fatty diabetes.

Maragliano announced that his precipitate of tuberculosis cultures contains both the proteins and the toxins, while Koch's new tuberculin is deficient in the former. It is also twenty times more potent than the product presented by Behring. He has established that the tuberculous organism produces antitoxin, itself, during the intermissions of the disease, which fact explains the clinic experience of spontaneous cure in some cases of tuberculosis. Many more cases would be cured if even a small amount of artificially produced antitoxin could be supplied from without to supplement the autoproduction. He concluded by reporting that forty-six patients cured two to three years ago with his serum, are still perfectly well, with no signs of recurrence. The serum was also endorsed by the experience of several other members.

Professor Queirolo ascribes much of the disturbance in typhoid fever to the imperfect digestion and consequent accumulation of decomposing matter in the alimentary tract. He avoids this by feeding his typhoid patients exclusively per rectum, as long as thirty days if necessary. He reports twenty-six patients thus fed, with remarkably favorable outcome, and no inconveniences. A careful study was made of the urine at the same time; the phenol and indican were much diminished or entirely absent during the rectal alimentation. He used Leube's nutritive enemas, four a day. The tolerance was perfect; opium was omitted after the first enema. Voit and Bauer have demonstrated that 20 grams of albumin can be absorbed by the rectum in a few hours. De Renzi warned against the danger of underfeeding the patient. He has been experimenting with subcutaneous alimentation, but finds it impracticable, as it is difficult to supply the proper amount of calories in this way. He added that the extension of the intestinal lesions would counter-indicate rectal feeding in some cases. Others approved of rectal feeding, especially in the case of children.

Germano confirmed the impossibility of the aerial transmission of the germs of cholera, typhus, and those of the bubonic plague. Menella reported prompt and certain improvement in tuberculosis limited to one lung, the pleura not involved, after gluteal injections of a solution of guaiacol, 30 grams; eucalyptol, 10 grams; and cod-liver oil, q. s. to make 100 c.c. A. Cantani also reported the favorable results of experimental research in regard to immunizing against influenza. He attributes his success to the fact that he used the exudations and emulsions of the organs of the infected animals.

Prof. N. Pane's antipneumonia serum was endorsed by De Renzi, who has administered it in thirty extremely severe cases. All recovered except three; one with grave renal lesions, and the other two dying soon after being received at the clinic. He has also seen two otherwise inevitably fatal cases saved by the serum, which he announces is harmless, even in quite large doses. His mortality with other treatment averages 24 per cent.

The French Congress of Surgery.

As already mentioned, "Contusions of the Abdomen" was the subject of one of the addresses. The advantages of prompt laparotomy were extolled and numerous convincing instances related in which life had been saved by laparotomy immediately after the first nervous shock had passed away, the earlier the better. Other instances of a fatal termination showed the danger of waiting for the manifestation of serious symptoms, when intervention is too late. The patient should be kept warm in bed and watched for the slightest indication of trouble, such as lower temperature, especially of the tongue, faster or slower pulse, suspension or difficulty of urination, change in the voice, localization of the pain, cramps and dilatation of the pupil on the corresponding side when the blow was received on either side of the median line. If the pulse, rapid at first, grows slower while the patient is resting the case is seldom serious. It is important to differentiate between the nervous shock and the shock from hemorrhage. The circumstances of the traumatism are of great significance for the diagnosis. In Demon's experience a wooden rigidity of the abdominal walls always indicated a ruptured viscus. Moty remarked that in the less severe cases opium is the only resource, as ice sometimes entails grave complications, notably phlebitis. Doyen advocated Sneguireff's method of arresting sheet hemorrhage, such as occurs in wounds of the liver, by directing a stream of steam upon the bleeding surface. It is also an excellent disinfectant. Michaux opens up largely, evacuates the blood with large aseptic sponges, examines the intestines systematically in warm sterile napkins and does not eviscerate except when fecal matter or débris is found. He leaves the abdomen largely open, localizing with iodoform gauze and injects serum into the veins at need, with peritoneal lavages with salted water and potassium permanganate. Doyen prefers strictly localized lavages. He presented a new drain which leaves the abdomen still a closed cavity. It is of glass with a projecting lip and two glass appendices, which keep it in place in the peritoneal cavity and ensure its permeability at all times. The outer end is fitted into a sterile condom in which the drained fluid accumulates, without allowing any contact with the outside air. Doyen also described a method of enterorraphy which can be applied to any part of the alimentary canal and has produced results surpassing expectations in some very serious cases requiring resection of a meter and more of the ileum and cecum with a neoplasm of 80 centimeters. He applies clamps above and below the portion to be ablated, which crush the middle and inner coats of the intestines, leaving only a thin wall which he ligates with silk. Two centimeters inside these ligatures he closes the intestine completely with clamps. He then cuts the intestine between the ligatures and the clamps, burning off with the thermocautery and pieces of the intestines still projecting and ligating the vessels of the mesentery as needed. The field of operation is thus cleared, absolutely aseptic. He then fastens the ends of the intestine firmly with a strong double thread, pushing the first silk thread inside after cutting it off close to the knot and performs lateral entero-anastomosis, either by closing the lower end alone and implanting the upper end over it or by uniting the two ends directly with a circular suture. When the end to end suture is made he detaches the mesentery a short distance and fastens the two superposed ends with two rows of stitches on the side toward the mesentery. He then sutures the outer free side, drawing the ligatures which close the intestine outside and cutting them. Elastic forceps applied above and below prevent the escape of the contents of the intestine. The suture is finished in a few seconds and the forceps removed, when the operation is concluded as usual. The complete anastomosis, the uninterrupted course of the canal, the double row of sutures and the absolute asepsis are the advantages of this method.

J. L. Faure reported two cases of serious syncope, one fatal, from the chloroform in performing the operation of resection of the sympathetic in exophthalmic goiter (three cases), and he suggests that possibly resection may render the heart more susceptible to the effect of the chloroform. Doyen claims that his rapid method of thyroidectomy has obtained four absolute cures in four cases and that it abolishes the tachycardia, which is not affected by resection of the sympathetic. His first case has been permanently cured since 1887; his second since 1893. Kocher's statistics show the benignity of the operation, which only requires eight to fifteen, rarely twenty minutes, while the operation on the sympathetic is much more tedious. Faure also asserted that invagination of the stomach in gastro-enterostomy prevents the accumulation of food in the superior end of the intestine, which frequently entails serious results. He avoids this by inserting a piece of the stomach in the intestine in such a way that a buttonhole in the invaginated gastric cone, facing the lower end of the intestine, allows the passage of the food directly into it. The edge of the buttonhole is overcast to keep it open and the cone is securely sutured to the buttonhole in the intestine. Ligatures to produce atrophy in inoperable tumors have been revived lately in the new light of asepsis, and the results obtained amply justify further attempts. Tumors with a single pedicle are best adapted to this treatment, also uterine neoplasms. Tuffier ligated an advanced epithelioma of the latter class seventeen months ago and the improvement was decided and permanent to date. It is now completely mummified; he even doubted his diagnosis until confirmed by the microscope. He also secured marked improvement in an infection of one kidney by ligating the vascular pedicle. Broca has been comparatively successful with ligatures in neoplasms of the face, and Hartmann reported success in fibroma of the uterus which subsided to a remarkable extent, even when only one of the four pedicles is ligated. This treatment is also suggested for certain localized infections, megalosplenia, phlebitis of the sinus, etc. The ligature can be applied to a vein or artery as indicated.

Chipault stated that he had now a record of fourteen cases of plantar *mal perforant*, of which twelve were cured by elongation of the nerve after evacuation of the ulcer.

C. Martin of Lyons asserted, as the result of much experimentation with dogs, that it is possible to secure complete regeneration of a bone or articular extremity by supplying light and firm support as a guide for the ossification. He uses a framework of strips of platinum connected by cross pieces, the size and shape of the missing bone. It holds the fragments apart, prevents the intrusion of the soft parts and can be filled inside with transplanted pieces of bone to assist the new formation.

Duret called attention to biliary lithiasis unaccompanied by icterus or tumor or the usual symptoms, and hence surgical intervention is frequently neglected, although it is the only means of relief from the intense pain, inflammation in the region of the gall bladder and progressive cachexia. It frequently dates from two to ten years previously. There are pronounced digestive disturbances, anorexia, finally neurasthenia and cachexia. The trouble is usually one or more stones lodged in the hypertrophied gall bladder, but without any accumulation of fluid. Cure was obtained in eleven out of his twelve cases.

General Report of the Berlin Lepra Conference.

IS LEPROSY TRANSMITTED BY WEARING APPAREL?

Dr. Von Bergmann of Riga said the answering of this question met with two hindrances: 1. The long incubation of leprosy in which it is difficult to decide whether in truth the incriminated object, say an article of clothing, has played the part of intermediary. 2. The gap which exists in relation to the vital conditions of the bacillus in our knowledge; for we have no positive notions as to its continued existence, its multiplication and the conditions under which its invasion takes place. According to Arning, Beavan Rake, Stallard, the bacillus can remain unchanged, even in decomposing water, for months, in relation to shape and colorability. The fact that any superficial slight injury of a lepra tuber makes possible the exit of crowds of bacilli into the external world is proved by the facility with which the smear cultures put in evidence the bacilli in the tuberculous form. Besides, the bacilli can easily be shown in the tumor secretion of the tuberous form. We must say, therefore, that if the bacillus is recognized as the nosologic agent of leprosy, the bandages, the body and bed linen, even the clothes and shoes, are objects which have received an abundant bacillary material, and are therefore capable, given the proper condition, to infect another organism.

We meet in practice the statement that the transmission has taken place through objects such as clothes. These statements are, I repeat, difficult to control. In a case in which the patient maintained with peculiar emphasis that he had been infected by the clothes of his lepra brother, which he wore after his death, it can be shown that in the lifetime of the brother there had been such relation between these two persons as to make a direct transmission very possible. The theoretically construed possibility of the spread of leprosy through infected objects can, however, obtain a practical background, if we consider the high percentage which the washerwomen furnish to the contingent of lepers, according to some reports as much as twenty per cent. of the patients. Of the present forty-nine female inmates of the Riga Leprosorum nine were laundresses. To be sure I can not prove that these women have really washed the linen of lepers. Positive statements have indeed been frequently made to me, but verification of the negative statements have not been practicable. Cotfin says that a family caught lepra through infected water, as it turned out that dirty linen of lepers had been sunk into the well from which the water was taken. Cornil attributes, in one case, to the uncleaned officiial dwelling of a leprous official the disease of his successor. He quotes at this occasion the old standpoint of the Mosaic law which declared the dwelling places of the lepers to be contaminated and gave prescriptions for their sanitation. However that may be, it is certain that until these still open questions are settled, we can not put aside the possibility of the transmission of leprosy through dirty linen, clothes, etc., and that we must take corresponding measures. It is, therefore, to be recommended that in the sanitary police regulations a careful disinfection of these objects, respectively, the burning of the same, be provided.

The sanitary police regulations must, moreover, include the disinfection of the dwellings of the lepers, as here, through uncleanliness of all kinds, especially the spitting on the floor, bacilli deposits are formed which must be made harmless, the more so as the tenacity of the bacilli is very considerable and furnishes the essential condition of a long enduring virulence.

PRACTICAL NOTES.

Ordinary Bottles can be used for the Fluorids if they are first filled with melted paraffin, and then emptied while it is still warm and fluid. The thin layer of paraffin that adheres to the glass will protect it from the chemical.—*Bulletin de la Soc. de Pharm. de Bordeaux*, October.

Anesin.—This substance, which has been described as an aqueous solution of acetone chloroform, has been brought forward by Vamossy as a substitute for cocain; he says it is a good local anesthetic, free from toxic properties.—*Deutsche Medicinische Wochenschrift.*

Diagnosis of Intestinal Worms.—According to Muller de la Fuente, there are two signs which indicate the presence of worms; one is the sudden colic, the pain strictly localized, and the other is a marked contraction of the visual field on both sides.—*Gaz. Méd. de Liège*, November 11.

Hysteria as a Mark for Peritpyhlitis.—Rendue (*Gazette des Hôpitaux*) alludes to two cases in which the signs of perityphlitis were so counterfeited that an operation was deemed essential for the diagnosis. In one the mimicry persisted after the abdominal section, in the other it did not. He declares against an operation where there is no fever irrespective of other signs. This may be a point well taken.

Bisulphate of Sodium as a Lead Eliminator.—Peyron (*Centralbl. für innere Medicin*, 1897, 42) claims that a daily dose of 5 or 6 grains of the sodii bisulphite in lead poisoning with traces only in the urine, will eliminate as much as 72 mg. in a day. This remedy acts very rapidly, as the maximum excretion of lead occurred two or three hours after its ingestion.

For Inhalation in Catarrh of the Upper Air Passages.—Kafemann recommends as extremely effective the following combination: Menthol, 4; eucalyptol, 2.5; turpinol, 2; essence of pine, 1. A few drops of this liquid are poured into a bottle, which is warmed over an alcohol flame. Balsamic vapors immediately fill the bottle and these the patient inhales through a tube.—*Semaine Méd.*, November 17.

Treatment of Sciatica with Hydrochloric Acid.—The painful spot is painted with acid. hydrochlor. pur. with a camel's hair brush, two to four coats. It smarts a little, but the pain is relieved at once and radical cure follows in one to three weeks. Small blisters are apt to form and in painting the surface the second time, twenty-four to forty-eight hours later, the blistered spots must be avoided. (C. Gennatas, twelve cases; *Therap. Woch.*, November 7.)

Aid to the Early Diagnosis of Tuberculosis by Injections of Artificial Serum.—Twenty c.c. injected subcutaneously in a normal healthy person produce no febrile reaction, but in a person with tuberculous lesions the temperature rises to 38 or 39.5 degrees C., in the course of nine hours, returning to normal by the end of the twenty-four. The temperature must be taken commencing a few days before to determine the absence of fever, and every three hours afterward. The reaction is not positive unless the temperature attains 38 degrees.—*Semaine Méd.*, November 10.

Euquinin.—A new substitute for quinin has been introduced under the name of "euquinin" (*i. e.* superior quinin). Chemically described, it is quinin in which a hydrogen atom has been substituted by a molecule of ethyl carbonate. The product resembles quinin sulphate in appearance, but is almost wholly free from bitter taste; it gives the regular reactions for quinin. Therapeutically, it is said to not only possess all the virtues of quinin, but its range of application is much wider, and it has the advantage of inducing no secondary effects. Clinical reports so far speak of its successful application in fevers, neuralgia, whooping cough, and as a tonic in anemia and chlorosis.—*American Therapist.*

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SATURDAY, JANUARY 1, 1898.

TO COMPEL MIDWIVES TO REPORT CASES OF PURULENT OPHTHALMIA OF INFANCY.

At the Meeting of the ASSOCIATION in Milwaukee, in 1893, resolutions were adopted by the Section on Ophthalmology approving of legislation which would compel midwives to promptly report cases of purulent ophthalmia of infancy to some legally qualified practitioner. As a result of the movement then inaugurated, midwives are obliged to report these cases in New York, Maine, Rhode Island, Connecticut, Minnesota, Ohio, Maryland, Missouri, Pennsylvania, Iowa, New Jersey, Illinois and Michigan, covering a population of over thirty-four millions. The prosecutions have not been numerous and still more rarely have midwives been severely punished for neglect in this respect. But the very existence of this law has had an admirable effect, and wherever a midwife has thus been brought to a sense of her duty, even by arrest, that has had a better effect upon the remainder of her class than all the lectures given and pamphlets published.

We call attention to this law for the reason that it should be passed also by the legislatures of other States and we trust that ophthalmologists, who most frequently see these sad results of ignorance and delay of midwives, will take the matter in hand, and also that medical journals in States without this provision will agitate the subject, so that when their legislatures convene, as most of them do about this time of the year, some move may be made to extend still further the effects of this beneficent law.

THE PATHOLOGIC MECHANISM OF TREMOR.

Although it is one of the most common of morbid motor symptoms and a very general accompaniment of states of weakness the phenomenon of tremor has not yet received a perfectly adequate or satisfactory explanation. We can conjecture of course its mechanism and assume, with DANA, that it is a derangement in the rhythm and force of the tonic influences proceeding from the brain to the muscles, or that it is in some way connected with impaired nervous conduction, but the underlying states that give rise to these lesions of function have not been made clear, nor has this been generally seriously attempted in the works treating of nervous disorders. We can say therefore with LANDON CARTER GRAY, in DERCUM'S text-book of nervous diseases, that the intimate pathology of tremor has been so far an unknown quantity, notwithstanding all the clinical studies and pathologic investigations of the various disorders of which it is a characteristic symptom.

While it is true that as yet we have had no perfectly satisfactory theory of tremor, as regards, at least, its ultimate cause, one thing can be assumed as tolerably certain, that it is of central, and probably cerebral, rather than of peripheral origin. Some authorities have admitted the possibility of lesions of the peripheral motor tracts participating in its production, but this must be from interference with cerebral impulses rather than from the local lesions themselves and were conduction altogether interrupted it is not probable that tremor would occur. In a recent paper in the *Wiener medicinische Wochenschrift*, ADAMKIEWICZ reports the results of a clinical and experimental study of this subject, which seem to throw a certain possible light upon the possible pathologic mechanism of the symptom. He starts with the assumption that the phenomenon is of cerebral origin; there is no tremor that continues during sleep and from this it may be inferred that it is a phenomenon of active central innervation, over which however the will appears to have practically no control. It may be defined as a series of involuntary muscular movements of very brief duration, of central origin, and independent of the will. To demonstrate its character ADAMKIEWICZ employed the following experiment: A piece of laminaria was introduced under the dura mater of a rabbit, and its gradual expansion in that situation caused first spasm followed later by paralysis and spontaneous tremor. Tremor, therefore, he concludes is only a higher grade of spasm, and both, in spite of the pathologic increase of muscular tonus in spasm, are alike paralytic phenomena.

According to the view ADAMKIEWICZ adopts, normal muscular movement is the resultant of two opposed innervations, the one cerebral, passing from the cortex by way of the pyramidal tracts to the anterior horns, the other cerebellar, reaching the cornua through the posterior columns. The one is the route of volitional impulses, the other that of tonic innervation. If the equilibrium of these is disturbed, by compression or otherwise, we have according to the part involved two varieties of motor disorders; if the pyramidal tracts, we have spasm or tremor from the uncontrolled cerebellar innervation; if the posterior columns, we have the disordered movements of ataxia. To explain how the tonicizing cerebellar fibers are put into action to produce tremor ADAMKIEWICZ assumes that, under pathologic conditions, they are excited by bodily movements, temperature, etc., and even by the normal heart pulse and the circulation, excitants that like other similar agencies are normally unfelt and only become irritants in conditions of disease.

Tremor can therefore be defined according to the ADAMKIEWICZ theory as the result of defective functioning of the pyramidal motor routes and a pathologic irritability of the tonic cerebellar fibers. It is a symptom of cortical motor weakness and may be caused, as he claims his pupils have shown, by any and all influences that diminish the energies of the cortical motor zones. This would explain, for example, how emotional distnrbances may produce it, as their action is often directly weakening and can not be otherwise than cerebral in their action. In fact, any form of recognized tremor will readily come under this definition, except possibly that ascribed to peripheral lesions, and, if such ever occurs, the cause may also be ascribed to hindrance of cerebral innervation. All tremors are essentially identical in that they cease during sleep and are associated with muscular weakness, which when its source is sought is presnmably of central origin. The theory that the function of the cerebellum includes the regulation of muscular tonus, though it has been questioned by some authorities, is apparently the one that is coming to be generally accepted and is strongly maintained by ANDRÉ THOMAS in one of the latest published memoirs on the anatomy and physiology of this organ. That, with impaired or lacking cerebral inhibition, this function may be pathologically hyperexcited so as to prodnce tremor is not only conceivable but highly probable according to all analogies and experience in pathology. Whether it is fully accepted or not, this theory of tremor offered by ADAMKIEWICZ appears to be on the whole as satisfactory a one as any yet proposed, both in its explanation of the presumed details of the mechanism of the symptom and in its agreement with admitted physiologic facts.

CONCERNING ATYPICAL TYPHOID FEVER AND PURE TYPHOIDAL SEPTICEMIA.

Atypical manifestations of typhoid fever are well known, not only to the clinicians but also to the pathologic anatomists. At the International Medical Congress, in Moscow, Professor CHIARI, of Prague, reported the results of his studies concerning the atypical manifestations of typhoid.[1]

Deviations from the usual or typical changes in this disease may occur in the following manner: 1. The typhoidal changes usually observed in the intestine, in the mesenteric glands, and in the spleen, may be peculiar. 2. Unusual inflammatory changes, due to the anomalous localization of the typhoid bacilli may be met with. 3. It may concern a general blood infection, without any definite localization, that is to say there may be a pure typhoidal septicemia.

In the intestine the typhoidal inflammation may be, so to speak, abnormal as regards its extent, its intensity and its localization. Thus the intestinal changes may involve not only the lower ileum but the whole small intestine and even the stomach, as well as the large intestine clear down to the anus. On the other hand, only a very few, and even but one single PEYER's patch, may be involved. In some cases there may be very extensive inflammation and necrosis, involving all parts of the intestinal wall; in other cases the process remains confined to the mucosa, no necrosis occurs and it requires special attention in order to find the intestinal lesions. This last is, particularly, frequently observed in children. It may furthermore happen that there are no changes in the usual place in the lower ileum, but that the changes are confined wholly to the large intestine, or wholly to the stomach.

The mesenteric glands may be but slightly enlarged, or there may form very large swellings in which necrosis may occur to an even greater extent than in the intestinal foci.

The spleen varies greatly also as regards its changes. It may be but little enlarged, or the enlargement may reach a considerable extent. It may be accompanied with copious hemorrhages, foci of necrosis may arise, the capsule may be so stretched that in removing the organ it is ruptured, or it may rupture spontaneously during life.

Then, there are cases in which there is complete absence of all involvement of the gastro-intestinal tract, the only changes being in the mesenteric lymph nodes and the spleen; furthermore, cases occur in which a very marked acute splenic swelling perhaps leads to the postmortem diagnosis of typhoid fever, the so-called spleno-typhoids, of which a case has been described by KARLINSKI.[2]

As regards unusual localizations of typhoid bacilli and the resulting changes, then it may be said that there is perhaps no organ in which inflammatory processes, due to the bacillus typhosus, has not been observed. These were either complications in the course of otherwise anatomically typical fevers, or there were atypical typhoidal changes in the organs usually affected. Thus there have been observed purulent inflammations due to the typhoid bacillus, of the pleura, lung, thyroid gland, peritoneum, parotid gland, biliary passages, kidneys, testicles, the periosteum, bone marrow, joints, skin, subcutaneous tissue, muscles, meninges,[3] endocardium and of the middle ear. Thus Guarnieri[4] describes a cholangitis due to the typhoid bacillus while the intestine was free from changes, the typhoid bacillus having been cultivated from the blood of the patient during life. Karlinski[4] found in a case of acute splenic tumor, without changes in the mesenteric glands or intestine, two myocardial abscesses containing typhoid bacilli. The bacilli were also cultivated from the spleen, liver and kidneys.

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[1] Zeitschrift f. Heilkunde, xviii, 1897.

[2] Wiener Med. Wochenschrift, 1891.

The most interesting deviation from the normal of typhoid fever is the one in which there are no distinct local foci whatsoever, the postmortem examination showing only moderate splenic tumor, and yet the bacteriologic examination reveals the existence of general typhoid infection. Such cases must be regarded as pure typhoidal septicemias.

It is known that in other cases of typhoid there has occurred, in addition to the typical and atypical local changes, a greater or less distribution of bacilli throughout the whole body. In connection with this it will suffice to refer to the case reported by Flexner[5] of typhoid septicemia, associated with abscesses in the kidneys. It is well known that the typhoid bacillus may be eliminated through the kidneys during the occurrence of the fever, and that it can be cultivated from the urine; it is also constantly found in the bone marrow during and after attacks of typhoid fever, showing that at some time during the disease a septicemia or invasion of the blood by the bacilli had taken place.

A pure typhoid septicemia has heretofore been described, most frequently in fetuses that were born by mothers sick with typhoid fever. The cases of so-called typhoid septicemia hitherto described have otherwise, in reality, been cases of atypical localization of the anatomic changes, with septicemia. In this connection it is well to bear in mind that there are those who claim that typhoid fever is under all circumstances a primary blood infection, and that the intestinal and other changes are secondary manifestations.

Chiari then describes the cases of typhoid fever which were examined in his institute during the first five months of this year. The total number was nineteen cases, but in seven of these typhoid fever in the anatomic sense was not present; in six of these the positive result with Widal's serum test had led to the clinical diagnosis of typhoid fever, and in five of the seven it was found on bacteriologic examination that it really concerned a pure typhoidal septicemia without any localized lesions. These cases, which are extensively described from a clinical, anatomic and bacteriologic standpoint, suggest the necessity for bearing in mind that when typhoid fever is endemic there may occur a pure typhoid septicemia, which may become confounded with other diseases, and furthermore, that when during life the serum test has given positive results we must be very careful not to exclude typhoid fever, even if the postmortem examination fails to show any of the local lesions characteristic of this disease, but to resort to a complete bacteriologic examination with reference to the presence of typhoid bacilli before reaching any definite opinion as to the nature of such a case. It may be seen that perhaps some of the observations that have appeared to point against the reliability of the serum test may not always rest upon sufficiently well taken grounds, and especially so when bacteriologic examination of the cases in question has not been made. It is well in this connection to remember that, as has also been studied by Chiari, the gall bladder may act as a depot for typhoid bacilli, so that when a typhoid infection of the body has occurred bacilli are nearly always to be found in the gall bladder, even when other organs are sterile.

THE PROGNOSTIC IMPORTANCE OF THE APPEARANCE OF EYE LESIONS IN INTERSTITIAL NEPHRITIS.

There are few practitioners throughout the length and breadth of the land who do not, in the course of a year, meet with more or less classic instances of interstitial nephritis, commonly styled Bright's disease.

Although this renal lesion is encountered among rural dwellers, it is far more likely to proclaim its presence among those who by their devotion to urban life outrage Nature, and sooner or later pay the bill in chronic constipation, catarrhs, auto-intoxication in its myriad forms, in short all those disordered conditions that predispose to the final production of what Schmeichler has aptly characterized as "connective tissue individuals," persons whose viscera and other highly specialized organs become the seat of interstitial processes. Thus is the foundation for interstitial nephritis laid, and though in its earliest phases the disease may be many sided, presenting a variation in subjective and objective symptoms often baffling to the practitioner, when the malady begins to unfold its classic features there is little likelihood of error in diagnosis. From this stage on to the last sad picture, the march of the process is more or less rapid according to the faithfulness with which the patient adheres to the dictum of his medical adviser. The disease may drag its weary length along, exhausting the utmost long-suffering and patience; or, on the other hand, in the midst of life the patient may be in death.

If such be the uncertainty as to the termination of this process which, for convenience is called intestitial nephritis, it is the duty of the medical man to familiarize himself with those danger signals that are hung out from time to time in nearly all slow but fatal diseases. In the malady under discussion nothing is of more grave import than the appearance of lesions in the eye. This is not new truth, and yet it is truth that deserves far more recognition than has ever been accorded it. The advent of retinitis in the eye of an albuminuric heralds the beginning of degenerative changes in the area of distribution of the carotid arteries, seeing which it necessarily follows that similar degenerations and hemorrhages within the cranial cavity are to be anticipated. This sequel to interstitial nephritis is not uncommon and many ophthalmic workers have had their study of such cases cut short by cerebral hemorrhage. Indeed such a termination is not infrequent among those who are the subjects of hemorrhagic glaucoma, another terminal degenerative sign of interstitial kidney.

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[3] See article by Ohlmacher on typhoid meningitis in the Journal Aug. 28, 1897.

[4] Quoted by Chiari, loc. cit.

[5] Journal of Path. and Bact., iii, 1895.

A study of the statistics of this subject is not without interest. Two years ago, **BELT** was led by his search through the literature of the subject into feeling that a more hopeful prognosis might be given in cases of Bright's if strict adherence to the family physician's counsel as to therapy, regimen and prophylaxis were observed. With this preconceived idea in view, **BELT** brought together the data of 409 cases furnished by most of the prominent ophthalmologists of the United States. But his hopes fell, for when the accumulated facts had been statistically arranged it was learned that of 409 individuals the subject of albuminuric retinitis due largely to living at the pace that kills, 155 were cases in private practice, of which number 62 per cent. died within one year, 85 per cent. in two years, and 15 per cent. lived more than two years. Of the 77 hospital cases, 85 per cent. died within one year, 93 per cent. within two years, and 7 per cent. lived more than two years. Of the remaining 187 mixed cases, 65 per cent. died within one year, 93 per cent. within two years, and 7 per cent. lived more than two years. And if these facts be properly collated, it is plainly shown that the large majority of the victims of albuminuric retinitis die within the first year after the appearance of the eye lesion, fully 90 per cent. die before the expiration of the second year from that time, while a scant 10 per cent. drag out a weary existence stretching over 10 years sometimes, and even to 17 years as in the minister reported by **WEBSTER**.

The value of accurate prognosis can not be overestimated. If it so happen that a physician's prognostications frequently fail of fulfillment he comes to be lightly viewed in the community and is held by his townspeople and brethren in the guild as a false prophet. On the other hand, the medical man should not be slow to prophecy when known facts are at hand; for let his prognosis, even though they be filled with foreboding and gloom, come unfailingly and timely to pass, and he will be laden with the confidence and increase of his patients, and they will forgive his shortcomings to seventy times seven. Such is the power of prophecy.

The foregoing statistics, then, establish a scientific truth of twofold value. First, in that it enables the practitioner to prognose intelligently in a given case; second, by reason of such authoritative prognosis, the sufferer, who is usually of the well-to-do class, may be acquainted with the suddenness with which his malady may terminate, permitting him to so arrange his worldly affairs as to set aside all necessity for the litigation that follows upon the death of most of those who are unfortunate or improvident enough to die intestate.

THE SOCIAL POSITION OF THE BRITISH MEDICAL PROFESSION.

The *Practitioner* has lately congratulated the British medical profession on the limited extent to which it suffered contamination from American medical science at the late (Montreal) meeting of the British Medical Association. The meeting in question was an excellent exhibit of how far philistinism has sunk British medicine beneath the level of American and continental (European) medical science. The section work in the main would not disgrace a third-rate American medical society of the mutual admiration type. The section on psychology, for example, sank far below the corresponding Section on Neurology and Medical Jurisprudence of the **AMERICAN MEDICAL ASSOCIATION**. In the last a European continental physician would find himself at home; in the first he would feel that, like Faust in Auerbach's *Keller*, he was among people,

> With little wit and ease to suit them,
> They whirl in narrow circling trails
> Like kittens playing with their tails.

The downward social trend of the British medical profession, partly resultant on this philistinism and partly on its flunkeyism, appears evident, as the **JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION** has already pointed out, in the award of honors in reward of medical eminence. While the **SALISBURY** administration has honored itself by the elevation of Sir **JOSEPH LISTER** to the peerage, the British medical profession has been hitherto condemned, as already pointed out in these columns, to the contemptible baronetage. The abolition of this is just now being demanded because of its notorious creation in the **STUARTS'** day by what **MACAULAY** ("Political Georgics," 1828) calls

> Boodles' patriot band
> Fat from the leanness of the plundered land.

It must in justice be admitted that there is a decided flunkeyism in the British medical profession which about two decades ago found expression in an animated discussion over the method of shaking hands with different ranks, whether the practitioner should not always ring the servants' doorbell and the like very caddish topics. Letters on these matters overflowed the columns of the *Lancet, British Medical Journal, Medical Times and Gazette* and the *Medical Press and Circular.* The whole subject was finally summed up by a "veteran practitioner of fifty-one years' standing" in the *Medical Times and Gazette.* "My practice," he remarks, "has been to ring the visitors' bell gently, though even that, when calling to see a servant, has seemed to me to savor of impropriety. But whatever course the young doctor adopts, let him above all things beware of using the knocker. That would imply familiarity with the family, the very suspicion of which it behooves the circumspect practitioner to avoid. So long as he confines his manipulations to the bell-pull, he is safe. The next problem which confronts him is what to do with his hat. Following the custom of other men who have business in the house, he should by rights leave it in the hall, not on the floor but on the hall table. This course however may involve him in serious danger. If there are children about the house they may be counted upon to play with it, perhaps march into the drawing-room with it on their heads, a complication, I need hardly say, as being evidence of undue familiarity would be of the gravest import. My own plan has been to take my hat with me and only relinquish it when the clinical investigations of a case rendered such a course absolutely necessary. Familiarity is impossible so long as the hand keeps touch of the beaver. It is an almost impregnable rampart and would take the sting out of anything a tale-bearing domestic may say hereafter. The ethics and equity of handshaking form a difficult subject. As a rule, I agree with the *Lancet* that it is best to avoid it. If a lady of title offer two jeweled fingers the young practitioner would be at once foolish and rude to decline to take them, but the touch should be cold and momentary. With the wives of commoners it will be best if it can be done without obvious rudeness, to bow formally instead of offering to shake hands, both on entering and leaving."

Thackeray voiced the feeling of the British county snobocracy toward the medical profession in Dr. Pendennis. He, after achieving a competency, became a member of the squire-archy and felt it as deep a disgrace to be styled "Doctor" as he had previously felt it to be an honor. American judges, notorious as many of them are for defiance of science, would hardly go to the extent of the English judge of county snobocracy ancestry who decided that a bill against a county magnate for treatment of scarlatina in a child, was an extortion since no child could have scarlatina without being confined to bed. In this the judge but imitated the conduct of Queen Victoria in the Lady Flora Hastings case. This young lady, when a maid of honor, began to exhibit signs of abdominal enlargement. The gossips of the court loudly hinted that she was pregnant and their view was adopted by the Queen. The majority of the court physicians declared, after a vaginal examination, that the unfortunate girl was not pregnant but suffered from a malignant tumor. Queen Victoria ignored their opinion, drove Lady Flora Hastings from the court in disgrace, deprived the most manly of the court physicians of their places and ostracized those by whom they were employed. The rapid development of the abdominal enlargement soon threw pregnancy out of the question. On the girl's death a necropsy revealed the existence of uterine sarcoma. No public amends were made to the memory of the unfortunate girl. The court authorities deprived the girl's father of a court office. The medical men who made the necropsy were subjected to scurrility and persecution by the court clique, which was finally ended by suit for libel. Had the mass of the British medical profession been anything but flunkeys of the time of the type of the "veteran of fifty-one years' practice," no head of a constitutional government would have dared to insult them for a conscientious clearly impartial necropsy. The contamination the *Practitioner* fears from the American medical profession, is the infusion of self-respect which might destroy the flunkeyism exhibited in the controversy over doorbell ringing and handshaking just quoted.

CORRESPONDENCE.

Department of Public Health.

Washington, Dec. 7, 1897.

Honorable Frank S. Gardner, Secretary New York Board of Trade and Transportation, New York City.

Dear Sir:—Having seen a letter addressed to yourself by Warren E. Anderson, dated Pensacola, Florida, Nov. 24, 1897, and published in the Journal of the American Medical Association in which this gentleman undertakes a serial criticism of "The Efficiency of the Marine-Hospital Service in the conduct of Federal Health Affairs," and which he states is made "without malice toward any one or animus of a personal character whatever," I take the liberty of stating to you that there appeared before a board of examiners of the Marine-Hospital Service in June, 1883, one Warren E. Anderson, a native of Marianna, Florida, and a graduate of the Medical College of Alabama. It may be interesting for you to inquire whether the gentleman who writes to you upon the character and abilities of the officers of the Marine-Hospital Service is this same Warren E. Anderson, who stood lowest in a class of eleven candidates for appointment in the Service, and was rejected on account of lack of professional attainments. If this shall prove to be the same gentleman it will serve to explain the animus contained in his letter.

Referring to his first objection as to the age of officers entering the Service, he has misstated the maximum age of applicants who are eligible for appointment, which is 30 years instead of 28 as stated by him. Particular information upon this specious objection as to the age qualifications of the officers of this Service is to be found on pages 11 and 12 of an "Address" by the Supervising Surgeon-General of the Marine-Hospital Service, in which it will be seen that the average age of the sixteen surgeons is 50 years, the average age of the twenty-six passed assistant surgeons is 35, and of the nineteen assistant surgeons, 29 years.

Referring to his second objection that less than 5 per cent. of the officers of the Service belong south of latitude 37. This misstatement may be dismissed at once by pronouncing it an untruth. The official list of the officers of the Service is inclosed, from which you will see that over 50 per cent. of the officers of the Service were born south of Mason and Dixon's line.

Instead of 10 per cent. of the regular officers of the Service who have had experience with yellow fever, at least 25 per cent. have been connected with one epidemic or another during the last twenty years.

Of other portions of his letter, which are mere expressions of his opinion as to the efficiency of the work of this Service, I shall not attempt a refutation, as you will have already concluded by the statements above given, taken from the records of this Bureau, that he is ignorant of the personnel of this Service, and if it shall prove that he is the person who was rejected as unfit for appointment on account of lack of professional qualifications, his "animus of a personal character" must vitiate all other views which he professes to hold concerning the Service.

I shall mail to you under separate cover an official list of the officers of the Service, with marks to indicate those who have served in epidemics of yellow fever in the past twenty years, an "Address" on the Public Health Service in the United States, together with the "Address" of the Supervising Surgeon-General before the Committee on Interstate and Foreign Commerce of the House of Representatives in 1894, all of which will give you official and accurate information upon the points which have been misstated to you by your correspondent.

Very truly yours,

(Signed) CHARLES E. BANKS, Surgeon M.-H. S.

PENSACOLA, FLA., Dec. 15, 1897.

HON. FRANK S. GARDNER,
Secretary Board of Trade and Transportation, New York City.

Dear Sir:—Please accept many thanks for your valued favor of the 8th instant, with enclosure, dated Washington, Dec. 7, 1897.

I had hoped that the calm, dispassionate reason of man would prevail in the discussion so auspiciously begun by us during the past summer, and which gave promise of rich reward so far as the advancement of the health interests of our country was concerned. The sudden and violent interjection, however, into this hitherto friendly contest, of the unwarranted, wanton, unjust and unmanly personal attack upon me by an *attaché* of the United States Marine-Hospital Bureau at Washington, in a recent letter to you, would seem to have disturbed, temporarily, at least, that serenity and peace of mind so necessary to the performance of a task undertaken in behalf of the public weal. I must confess that I was both surprised and pained upon reading the communication of Surgeon Banks to you, and sincerely regret that the incident should demand any notice, whatever, at my hands. I was surprised because I was ignorant of the fact that it had become a settled policy of the departments of our government, to *suppress debate of important public questions, by a resort to personal attack upon the quiet, unoffending (but tax-paying citizen) of the Republic.* I was pained that an imputation so base, so cowardly, so reckless and so false should be made against the honesty of my motives. For the past fifteen years I have lived in this community, and in that time have won the respect and esteem of the people. I have held important public offices by both appointment of the governors of the State and election of the people, but no one has ever before questioned my integrity, or doubted the sincerity of my purpose. That it should be done now by one I never saw or knew, one whom I have never even criticized, is indeed inexplicable. Objectionable *systems* I always condemn and attack; *men*, simply as such, never.

If you will bear with me for a few moments, I will relate as briefly as possible the following facts: In 1883 I was examined in Washington by a Board of Examining Surgeons of the Marine-Hospital Service, in company with *nineteen or twenty* other applicants for *a vacancy* then existing. The examination began Monday forenoon of May 28, and by *Thursday* the class has been reduced to *eleven*, the others having failed to keep up the required daily average of 70. Saturday night, after having *stood* the examination to the close, I met the Surgeon-General, Dr. John B. Hamilton, who, in answer to a question, stated that I had "failed to get this appointment;" that several —three or four—were ahead of me; that, "results of these examinations being *secret*, I can not tell you just how you have been rated by the Board." He further urged me to appear again the following year, provided a vacancy occurred. Returning home, the Surgeon-General sent me an *appointment* to the Station at Indianola, Texas, as Acting-Assistant Surgeon. Yet, Surgeon Banks says I "*was rejected for appointment on account of lack of professional qualifications.*" Surely, with access to the *secret* archives of the Bureau, he should not have withheld half of the truth to suit his own purpose! I reported at Indianola, but not liking the location, resigned and returned to Pensacola, where I have resided since, and, so far, without occasion to regret the "alleged failure" before the Board of Examining Surgeons; and the episode itself has long since been lost to memory in the activity of a busy, professional life.

It would seem to me, however, that the people care nothing as to how Warren E. Anderson was rated on examination in 1883; how Charles E. Banks stood in his class; whether he was examined at all, or whether he secured his present lofty position by political "pull," or personal favoritism. They do desire to have, though, a free, fair and unbiased discussion of the subjects of quarantine, and the prevention of epidemic disease. The enemies of the Little Corsican pointed with derision to his repeated failures on examination, but military critics point with impartial pride to Rivoli, to Arcola, to Austerlitz, to Marengo, to Jena, to Friedland, to the conquest of a Continent, as his title to undying fame! Millions of people have long since forgotten that the hero of the civil war stood amongst the lowest of his class at West Point, but they all remember that on an eventful day in April, 1865, he stood first in glory of arms on the field of Appomattox, and first of all men in that noblest of attributes—*magnanimity!* Your Washington correspondent might make the attempt to emulate this illustrious example, in this one particular.

Personally, however, I care naught for the reflections of Surgeon Banks upon my professional ability of fifteen years ago, or now. I know nothing (and care less) of his attainments, past or present; but his letter indicates clearly that the test of gentlemanly bearing was not applied to his case, or he would now be engaged in earning a livelihood at some honest trade on the sandy beach of the Atlantic Ocean, or the rocky sides of the snow capped hills of Maine.

In dismissing forever, I hope, the personal references of Surgeon Banks' letter (there was nothing else in it), I would say that a cause requiring the use of such infamous methods as those employed by him, is surely in a high state of decomposition; far beyond the reach of moral disinfectants. But how horrible in contemplation even, the control of our health affairs by a man who could write the letter to you from Washington dated Dec. 7, 1897, and yet he stands, I believe, in line of promotion!

It might be well for you to determine the actuating motive of all those earnest advocates of a separate Department of Public Health; and whether or not Doty and Girdner and Wingate and Porter and Bloxham, the members of the AMERICAN MEDICAL and American Public Health Associations, the press of the South (almost without exception) have had their youthful aspirations clipped by boards of examining surgeons; and if so, shall they be frightened away by the skeletons of a long-forgotten past, exhumed in ghoulish glee from secret archives of the Marine-Hospital Service by your correspondent? It must be so, according to the only argument he has advanced in his letter.

For your information, I will say, that for the past fifteen years I have had ample opportunity of studying yellow fever epidemics in the South. My knowledge of their management has been obtained by both personal observation and reports of the public press, and I believe this information to be as accurate as any furnished by the Marine-Hospital Service. That, in the main, the facts detailed in my letter to you, of the 24th ultimo, are correct, no truthful man acquainted with contemporaneous history can deny. The discrepancy of *two* years in the "age qualification" is immaterial to my argument, and was an unintentional error. The following clippings, taken from the *New Orleans Item* may prove the correctness of another point made by me:

> "A number of Marine Hospital, local physicians, and Health Officer Porter of Florida, all yellow fever experts, had a reunion yesterday in the rotunda of the St. Charles Hotel, and the proposed National system of quarantine was liberally discussed. The Marine Hospital men admitted to having just seven officers in their service who had faced Yellow Jack. Seven physicians, however expert, are hardly adequate to protect the yellow fever frontiers, extending from Charleston, S. C., to the mouth of the Rio Grande, and they admitted this fact."
>
> "It now develops, by the T. D. system of deferentiation, that the Marine Hospital corps have very few officers who have any experience or practical knowledge of yellow fever. They have just six officers out of sixty-five and *The Item* has repeatedly published this fact during the past three months."

Your Washington correspondent would have it appear that I thought too few of the officers of the service came from "south of Mason and Dixon's line," whereas I made no such reference to that historic landmark, but stated that only a small percentage of them came from "south of latitude 37, or that area of the country likely to be invaded by yellow fever," meaning more particularly the Gulf States.

In conclusion, allow me to say, that my "earnest protest" contained no personal reflection upon any officer of the Marine-Hospital Service, many of whom I know, respect and honor; that it was conceived with as little malice as one could find in the breast of a new-born babe.

To Surgeon Banks I would commend, observing his ignorant disregard of the golden law of Christ, the injunction of Allah's prophet: "Be moderate in your speech, for the most unwelcome of all voices is the voice of an ass."

I shall refuse further notice of this gentleman, and trust that he may not again disturb the peaceful trend of my thoughts.

The letter from Washington having been published in the *Evening Post*, I would request the same courtesy be shown me.

Very truly yours, WARREN E. ANDERSON, M.D.

Curettage of the Uterus in Incomplete Abortion.

FT. ADAMS, R. I., Dec. 21, 1897.

To the Editor:—In the JOURNAL of Nov. 27 and Dec. 11, 1897, articles appeared on the treatment of inevitable abortion, and I present the following history of a patient in which curettage was performed as a means of emptying the uterus of the retained secundines, which resulted in the prompt recovery of the patient from an almost moribund condition.

The patient, a female of middle age, multipara, anemic and debilitated, while about her household duties suddenly fell to the floor from continuous loss of blood, which had been a prominent symptom for several days and had been attributed to a more than usually profuse catamenia. All knowledge of a probable pregnancy was denied.

Pain and hemorrhage were very pronounced symptoms, and the patient was at once placed in bed, the foot end raised, morphia and viburnum were administered *pro re nata;* the hemorrhage and pain were relieved for a few hours, only to reappear with renewed force. An examination showed the cervix to be soft and dilated. The lower uterine segment was compressible and softened. The general condition of the patient was very bad, lips white, cornea glassy, radial pulse not perceptible, extremities cold. Upon approaching the bed the patient vomited and sank back utterly exhausted. Subcutaneous injections of strychnin, saline solution and brandy brought about reaction, and chloroform was administered at once; anesthesia was prompt and a remarkably small amount of the chloroform sufficed. The patient was placed in a dorsal position on the Kelly's pad, the cervix drawn down and dilated with steel dilators. An irrigating sharp curette was introduced and the uterus was thoroughly cleaned out. Large pieces of placental tissue were removed but no signs of the fetus were observed. The hemorrhage promptly stopped and the uterus contracted well. A strip of iodoform gauze was introduced into the uterine cavity and allowed to remain twenty-four hours. The patient was removed to another bed and recovered without experiencing further pain, nor was there any subsequent rise of temperature. The bedding from which the patient was removed was saturated with blood to an astonishing degree.

It can probably safely be asserted that the safety of patients suffering from abortion lies in the prompt relief and abatement of the alarming symptoms, allowing the pregnancy to continue, or the evacuation of the uterus of all the products of conception. The immediate and remote dangers of abortion are many, any one of which might end fatally. If it is determined that a case of abortion is inevitable, the sooner the uterus is empty the safer for the patient. If surgical intervention will accomplish this object with less suffering, and avert such possible complications as hemorrhage, putrid intoxication, septicemia and peritonitis, suppurative arthritis, embolism, tetanus and chronic uterine disease, its general adoption would seem to be commendable. WILLIAM ROBERTS, M.D.,

Hospital Steward, U. S. Army.

The New York Medical League and the Sick Poor.

NEW YORK CITY, Dec. 15, 1897.

To the Editor:—Many good people are suffering from the apprehension, and misapprehension, that the New York Medical League is opposing charity to the sick poor. This is entirely foreign to the purposes of that body, therefore we are directed to communicate to you and, by courtesy, through you to the public, the following statement:

The New York Medical League believes:

1. That there is not enough charity work done in this city.

2. That there is too much of the benevolence business transacted. That many worthy poor are deprived of the alms provided for them, because all those alms do not reach the truly needy through the proper direct channels. And that it is a shame that any institution should show handsome annual profits and yet beg for city money, especially when its earnings represent monies derived from the poor.

3. That all dispensaries, etc., should be free, for it is a cruel

and unnecessary hardship to ask poverty-stricken persons to pay anything for medicines or surgical appliances.

4. That it is a bad policy to give city money to private institutions, to the detriment and loss of the public ones appointed for the care of the sick poor. We believe that the city institutions should be repaired, improved in sanitation and illumination, and should furnish larger and better accommodations. The city money should be used to give better food, warmth and clothing to the patients under treatment in the city hospitals.

5. It is all wrong to give public money to medical colleges; the profits go into the pockets of the faculty or into the institution. These incorporated colleges are close corporations and just as much money-making enterprises as a grocery store and a gas company.

6. It is an outrage that the public institutions should be obliged to maintain a patient on less than thirty cents a day, while the city gives over one dollar per day to private institutions for the same work.

7. The Board of Estimate and Apportionment stood a tie, two to two, and the chairman cast the deciding vote. Therefore, the Mayor is responsible for the fact that the municipal institutions will be a reproach to our city because the money that should have gone for their urgent necessities has been given away. As he himself stated in a certain case, it was given because he knew the man interested.

8. The tax-payers are willing that private persons should give their own money, but we do not believe they approve of any diversion of public money away from the public institutions, or of any gift of the same to close corporations.

9. Finally, we wish to state that in the large gathering that protested, there were representatives of tax-payers' associations, business men, etc. The doctors were there simply to give evidence against the farce behind the scenes, partially veiled by the mantle of a so called charity.

DOUGLAS H. STEWART, M.D.,
Cor. Sec., New York Medical League.

License in Germany.

DETROIT, MICH., Dec. 20, 1897.

To the Editor:—Dr. B. Becker's friendly corrections and suggestions concerning the licensing of physicians in Germany are to the point, but in some instances incorrect. While the subject is too unimportant to consume much of your space, once begun, I believe in finishing anything correctly.

An American graduate in medicine, in order to matriculate at a German university needs possess no further documents than his diploma and passport. Whether or not an A.B. or A.M. degree of this country would be considered an equivalent by the German authorities of a *testimonium maturitatis* I am not prepared to say. Any physician desiring to leave this country for the sake of engaging in the practice of medicine in Germany where, by the way, there is absolutely no demand for a foreign physician, can get the necessary particulars by addressing either Seine Magnificenz p. t. Decanus der medicinischen Fakultät der Universität (Berlin, etc.), or the Board of Examiners.

The study in the preparatory school, gymnasium, embraces a curriculum of fourteen semesters (seven years) only. A young man may enter the university at the age of 17 years. Dr. Becker is correct concerning the statements that such universities as Johns Hopkins, Harvard, etc., are not considered equivalent to a German university. Any United States medical college in good standing with the Association of American Medical colleges is "OK" as far as this goes in Germany.

If the government calls a physician, surgeon or scientist to a chair in a university, even if he be a graduate from a so-called irregular college in this country, he is immediately licensed to practice medicine without any further ceremonies. Occasionally a great foreign physician (and there are plenty of them here) will get special privileges from the Minister (secretary) of Education. So, for instance, I am satisfied that such men as Senn, Osler and others, whose works are considered standard all over the civilized world, would have but little difficulty in getting a state license, without the prescribed examination. Germany honors even foreigners, if they deserve it.

In addition I beg to say that in Germany exists a law called *Gewerbefreiheit*, giving *everybody* the privilege of practicing medicine, forbidding him to call himself doctor or signing himself *practischer Arzt*. He can also not sign death certificates and there are a good many more privileges he does not enjoy.

An American physician could have a sign reading: "Dr. N. N., approbiert in Amerika."

The statement made by Dr. Becker, that the requirements are practically the same all over Europe is erroneous, for in Austria, for instance, an American diploma gives the holder but little if any standing, even when he wants to matriculate as a student. He would have to begin like a freshman.

In conclusion I beg to say that it would be a very good idea for the editorial management of the JOURNAL to publish a *résumé* of the laws governing the practice of medicine in all countries. There are many South American, African and Asiatic countries where American physicians would find a great field of work, but they are ignorant as to whether or not they are authorized to engage in the practice of medicine there.

How difficult it might be for a poor physician, who seeks his health in the South, to pass an examination in Spanish or French and pay a large fee when he intends to practice among American or European settlers only, is plain.

I thank Dr. Becker for the trouble he has taken; and "A Reader," the original inquirer, might do well to first write to the Board of Examiners, in the city he intends to settle, before crossing the ocean. Very truly yours,

GUSTAVUS M. BLECH, M.D.

Practical Prophylaxis.

CHICAGO, Dec. 26, 1897.

To the Editor:—As medical men who believe in prophylaxis, we are in duty bound to do all in our power to prevent disease and suffering. Most diseases are caused by improper food, bad air, lack of sunlight, exposure, bad occupation, worry, overwork, heavy work, irregularity, unsuitable climate, traumatism, or alcohol. These causes are mostly the results of poverty. We all know only too well the effects of poverty's surroundings upon moral, mental and physical health. When ten years of poverty will cause adults to deteriorate and often become criminals or commit suicide, is it any wonder that children should be warped mentally, morally and physically for life?

Poverty is without doubt the chief cause of degeneration, child labor, drunkenness, crime, anxiety, disease, insanity, suicide, dead-beats, charitable institutions, dispensaries, etc. If we would prevent the greater part of this, we must prevent poverty.

Poverty and destitution always begin at the exact point where men can not get a chance to use land and machinery; because the former is the source of all food and shelter, and the latter is the only civilized means of obtaining food and shelter from the source. We can easily imagine what would happen if the source of water and the means of reaching it were all controlled by private interests. You can actually see and feel the effects of having the source and means of getting food and shelter controlled by private interests.

Food and shelter are as necessary as water, therefore the same common sense which has given us public control of enough of the water-supply and highways to accommodate those who have not private water, should also demand that enough available land and machinery be reserved under public control to accommodate those who have not free access to that under private control. Then no one could be denied an opportunity to produce food and shelter or their equivalent. Poverty and destitution would be practically impossible and consequently disappear.

Now, "available land and machinery reserved under public control" is simply necessary business or industry owned, operated and monopolized by the Government. For instance, the U. S. mail service. In other words, the Government should own, operate and monopolize enough lines of necessary industry, at fair wages, so that by reducing the hours of labor it can provide work for the unemployed. We estimate that public control of the railroads, express, telegraph, coal mines, car lines, telephone, light and water systems, at the eight hour day, would about take up the unemployed. This would put about two million idle men to work, thus incidentally give us two million more patients, do away with dispensaries, charitable institutions and dead beats, remove the pressure which is crowding the medical profession as well as all trades, and also be the grandest prophylactic measure ever instituted. What could be more fitting than for the medical profession to take the lead in this reform?

We are trying to distribute as widely as possible, circulars fully describing this reform, and therefore we earnestly ask all members of the medical profession to please send stamped and addressed envelope for some of the circulars. It will help a most worthy undertaking and greatly oblige,

Yours for practical prophylaxis,
Maurice F. Doty, M.D.

An Acknowledgement.

New York, Dec. 25, 1897.

To the Editor:—Will you allow me to correct an omission and acknowledge my indebtedness to my friend Dr. F. S. Mandlebaum, for the photographs illustrating my article on "Van Arsdale's Triangular Splint for Fracture of the Shaft of the Femur," etc., in your issue of Dec. 18, 1897.

Yours fraternally, A. Ernest Gallant, M.D.

Per Os, not "Orem."

New York City, Dec. 25, 1897.

To the Editor:—Thanks to "F" (page 1284, column 2, lines 46 to 51, Journal, Dec. 18, 1897), because I had rather be right than wrong; because Daniel Webster said that he "would not give a cent for a man who never made a mistake"; because Ambassador Phelps said, "a man who never made a mistake never made anything," and because our beloved, great and honored Dr. Lewis A. Sayre said that he was "thankful for any true criticism, no matter how sharp, keen or cutting."

Respectfully yours, Ephraim Cutter, Sr., M.D.

SOCIETY NEWS.

Resolutions Adopted at the Meeting of the Boston Medical Society, Dec. 18, 1897.—

Whereas, The unrestricted abuse of medical charity in the large hospitals and dispensaries of Boston is being seriously complained of by a large number of general practitioners; and

Whereas, The State has granted charters to these hospitals and dispensaries for the definite purpose of giving medical and surgical care and treatment to indigent persons within this city and Commonwealth; and

Whereas, The Boston Medical Society, individually and collectively, recognize, with every feeling of sympathy, the rights and just claims of some of our citizens to the benefits of public and private charity, and will not be found wanting in generosity in whatever may tend to foster the moral, social and physical well being of the sick, the poor, the destitute, the lowly, the worthy and the unfortunate; and

Whereas, Large numbers of persons of both sexes frequently, daily and repeatedly receive medical and surgical advice and treatment gratuitously for numerous cases of minor surgery and ordinary illness, who are believed to be financially competent to pay moderate fees; and

Whereas, The time, facilities and attention at the dispensaries being necessarily limited, that which is received by the well-to do and the undeserving is, in that proportion, withheld from those who by chartered rules of those institutions are justly entitled to their benefits; and,

Whereas, The practitioners of medicine and surgery of any community who have duly graduated from accredited medical colleges and have incurred the expense of locating in such communities naturally and justly feel that their present and prospective rights and privileges are wrongly encroached upon by the abuses now in practice in connection with medical charities; therefore, be it

Resolved, That it is the opinion of this Society that some means can be found to check or modify this formidable evil; and

Resolved, That an urgent call be made upon all such members of the profession who are in sympathy with this movement and have at heart the best interests of the medical profession, to render such moral assistance and financial support in the adoption of such measures as will tend to eradicate and prevent these evils, abuses and practices; and

Resolved, That an open meeting be held at some future time and the profession at large be invited to be present; and

Resolved, That a copy of these resolutions be sent to the *Boston Medical and Surgical Journal*, the Journal of the American Medical Association, the *Medical Record*, the *New York Medical Journal* and the *Medical News* for publication.

M. Gerstein, M.D., Secretary.

BOOK NOTICES.

Manuali Hoepli Sieroterapia. Del Dottor Emilio Rebuschini. U. Hoepli, Milano, 1897. Pp. viii, 421. (Manual of Serotherapy. By Dr. Emilio Rebuschini.)

This is another of the little Hoepli manuals, which must be very convenient to Italian students and physicians. Its bulk of 421 pages of closely printed text shows that it is more than a brief compendium; it is in fact a very fair compilation of the principal facts of serotherapy up to within the past year or two, apparently fairly and judiciously stated. The work takes up each disorder that has been thus treated or experimented with, from the earlier attempt of Pasteur, Behring and others, down to Sanarelli's latest claims as to the serotherapy of yellow fever. The literature appears to have been very carefully gone over, and American data are not overlooked, as was formerly often the case in European compilations of this nature. To any one who can read Italian this would be a very handy ready reference work.

Fiftieth Anniversary of the Hartford Medical Society, September 15, 1846. Proceedings of the celebration October 26, 1896, at Hartford, Conn.

This volume includes the introductory remarks by the president, M. Storrs, M.D. Historic addresses by Gurdon W. Russell, M.D., on the deceased members and those connected with the later years of the Society, by Horace S. Fuller, M.D. "Esprit de Corps" by Henry P. Stearns; The present and future of the Hartford Medical Society as suggested by a study of the fundamental enactments, by Melancthom Storrs, M.D.

The smooth and pleasant course of the Hartford Medical Society from the foundation in 1846 to the present time made it a pleasant task for the members to meet and celebrate the occasion. No one can peruse the work without feeling that they missed a very important event by not being present. This commemorative volume is of interest to every member of the medical profession, and the biographies contained in Dr. Fuller's address add something to American medical biographies.

Some of the speeches on the occasion of the anniversary dinner were of a high order of literary merit, and all were amusing and entertaining.

The Hartford Medical Society, judging from this volume, is composed of very pleasant people.

Transactions of the Iowa State Medical Society, Vol. xv. Cloth. Illustrated. 400 pages. 1897.

This book contains the proceedings of the forty-sixth annual session of the Society, held at Marshalltown, Iowa, May 19, 20 and 21, 1897. Besides lists of members, auxiliary societies, obituary notices, etc., the forty papers presented at the annual meeting are given in full. The volume is well bound, well edited and on excellent paper, a credit to the society.

Proceedings of the Florida Medical Association. Paper. 85 pages. 1897.

The proceedings of the twenty-fourth annual meeting of the Association, held at Palatka, Fla., April 1897, are given in this volume. The appendix contains the various papers presented at the meeting, lists of members, etc.

NECROLOGY.

JOSEPH LEWI, M.D., Vienna University, Austria, 1847, died at his home in Albany, N. Y., December 19. He was born in Radnitz, Bohemia, August 17, 1820 and came to Albany in 1849. Having obtained prominence by both industry and skill he served with Drs. Thomas Hun, Alden March and Mason F. Cogswell on the board for the examination of New York surgeons for the U. S. Volunteer forces. He was an ex-President of the Albany County Medical Society, the senior censor of the New Yofk Medical Society and a consulting physician on the staff of the Albany Hospital. From the lay press we gather that notwithstanding his robust health which began to fail last spring, he died of some affection of the liver.

Prof. E. S. TARNIER, Paris, aged 69. One of the most notable medical figures of our epoch, an accomplished scientist, instructor and author. His greatest work was along the line of obstetrics, which has rendered his name familiar to every member of the medical world in both hemispheres. In 1882 he proclaimed the necessity of isolation for puerperal fever, and to him we also owe the wide-spread use of sublimate and numerous obstetric appliances. His basiotribe, cephalotribe, dilator, incubator and forceps have rendered incalculable service, and the latest models are still fashioned upon their principles. France recognizes the debt she owes to Tarnier and the clinic with which he has been so long connected, is to be called henceforth the *Clinique Tarnier*. He has been president of the Société de Chirurgie, of the Académie de Méd. and of the Soc. Obstet. de France. The list of his works is given in the *Progrès Méd.* of December 4, but his great "Treatise of the Art of Accouchement" is left unfinished, although two volumes have already appeared, and 700 pages of the third are in press. His pupils who have been assisting him intend to complete the work, making every effort to render it worthy of the master.

STEPHEN H. CONGER, M.D., College of Physicians and Surgeons, New York, 1843, of Summit, N. J., dropped dead in the Delaware, Lackawanna & Western Railroad waiting room on December 24. He came to Summit from New York in 1870, was aged 76 years and leaves a widow and two sons.

RAYMOND L. HELLER, M.D., Napokon, Ohio, December 14, aged 26 years.——P. E. Sandridge, M.D., Nelson, Mo., December 13, aged 66 years.——C. A. Thompson, M.D., Jefferson City, Mo., December 15, aged 74 years. During the war he was surgeon of the Thirteenth and Nineteenth Illinois regiments for four years. He was a prominent figure in the State Medical Association and was treasurer of that body for eighteen years.——Charles H. Jones, M.D., Baltimore, Md., December 17.——William Voorhees, M.D., Spottsylvania, Va., December 19, aged 62 years.——E. E. Buringer, M.D., Pittsburg, Pa., December 19, aged 28 years.

J. B. LARGEAU, one of the younger surgeons of France, outside of Paris, whose name is well known by his communications to the Soc. de Chir, and the *Archives Prov. de Chir.*, of which he was one of the founders.——R. Branchet y Vime Pradat, professor of hygiene at Granada, Spain.——Max Burchardt, privat docent of ophthalmology at Berlin, Graefe's successor at the Charité.——L. Auerbach, professor ex. of histology at Breslau, aged 68 years.——Edmund Drechsel, professor of physiologic chemistry and pharmacology at Berne, aged 54 years, and noted for his investigations of the properties and products of the albuminoids, origin of urea, etc.——L. A. Buchner, aged 84 years, senior member of the medical faculty at Munich, formerly professor of pharmacology.

PUBLIC HEALTH.

Health in Chicago.—The report for November gives the total deaths as 1,613, or 0.99 per 1,000, the rate for the same period in 1896 being 0.97 per 1,000. These 1,613 deaths were as follows: 312 under one year old; 184 under five years old; 173 were due to nervous diseases; 170 to consumption; 160 to pneumonia; 120 to heart disease; 87 to acute intestinal diseases; 78 to bronchitis; 75 to diphtheria and membranous croup; 66 to cancer and 44 to typhoid fever.

The Passaic Sewage Problem.—A bill is shortly to be presented to the New Jersey legislature for the building of a great trunk sewer line twenty-six miles long, extending from Paterson Falls to Newark Bay, at a cost of $6,500,000. The work is necessarily of a State nature, inasmuch as there are parts of five counties and eighteen or twenty cities, towns or hamlets in the lower Passaic sewer district. The commission having the matter in charge, in their report to the New Jersey Sanitary Association, estimate that the population of the valley may reach 1,458,000 in 1930. They refer to the dry summer of 1896, when the river proved a veritable cesspool, and make passing allusion to London, Manchester, Glasgow, Berlin, Paris and other centers of population as grappling with the same difficulties in a strikingly humanitarian spirit.

Some Changes of Interest to New York Physicians.—The new State charter of New York allows the addition of another medical member of the city board of health, making three doctors to two laymen. Meetings are to be held in the main office of "the borough," but there will be a branch office in each borough and as many more as may be necessary. The Board of Public Charities is to be formed much on the same lines, the jurisdiction being slightly changed. One commissioner is to be appointed for New York County, another for Brooklyn and Queens Boroughs, and the third for Richmond. The mayor designates the president. A tardy recognition of the rights of the general practitioner is to be noted. The system of registered physicians, who are to be called by the police in emergency cases, which is now in vogue in Brooklyn, has been adopted for the whole city. If patients are unable to pay the physicians for their services the doctors will be recompensed out of a public fund.

Heavy Death Rate at Havana.—Recent reports from Cuba show that a decimation of the population (estimated at 200,000), has been going on during recent months, and the life loss is really greater than in the summer. Deaths from yellow fever have decreased steadily since the middle of summer on account of the establishment of military hospitals outside of infected towns and because of the cool weather. Enteric fever does not seem to exist to any extent beyond the military hospitals but it appears to be very fatal in those institutions. Deaths from malarial fevers have also increased, and no diminution is reported in the number of deaths from enteritis, dysentery and diarrhea; in fact, the deaths from enteritis have increased largely in the military hospitals. The report shows that the total number of deaths in the city of Havana and the town of Regla during the month of November, from all causes, amounted to 2,317, equivalent to an annual death rate of 139 per thousand inhabitants. In June there were 1,041 deaths, equivalent to an annual death rate of 62.46 per thousand; in July, 1,193 deaths, equivalent to a death rate of 71.52; in August, 1,439 deaths, equivalent to a death rate of 86.34; in September, 1,778 deaths, equivalent to a death rate of 106.68; in October, 2,272 deaths, equivalent to a death rate of 136.32; in November there were 2,317 deaths, equivalent to a death rate of 139. It is evident that the contracted food supply has at last reached that point where no food stuffs are delivered without immediate payment. Beri-beri, which has heretofore been confined to the Chinese population in Havana, is reported to exist to some extent among the natives of the lower class, and it is reported to be spreading in Matanzas. Two deaths from leprosy were reported during the month. These deaths were not reported from the leprosy hospital, but from private residences, and it is no unusual sight to see lepers in the streets.

Argument versus the Proposed Senate Bill for Establishing a National Quarantine System.—Dr. Hermann M. Biggs of the New York City Board of Health has given expression to his views criticising the sanitary scheme laid down in Senator Caffery's well-known bill. It will be seen that Dr. Biggs would minimize the executive powers of the proposed national sanitary body and would exalt its scientific, advisory and educational functions. It is his opinion that the time has come when there should be some Federal supervision through a national board or bureau of health. Such a department should have power to determine the minimum sanitary requirements at all ports of entry throughout the United States and should determine the sanitary regulations relating to interstate commerce and communication when there is danger of the transportation of contagious disease from one State to another. It should be controlled by a board whose members possessed the highest scientific attainments and its regulations should be enforced through an executive officer. Such a national department should have thoroughly equipped laboratories, presided over by bacteriologists and chemists competent to make experimental investigations of the highest order. A prominent feature of the work of such a department should be educational. It should issue from time to time circulars of information on various matters connected with the diagnosis, treatment and sanitary supervision of the various infectious and contagious diseases; on methods of disinfection and on various other matters connected with public medicine. These circulars should be forwarded regularly to the health officers of all cities and towns throughout the United States. The circulars of information which would be issued by it (providing the board controlling it was constituted of men of such character as to give the utterances of the department force) would be accepted by all local medical officers of health, State boards and health officers of maritime ports as the minimum sanitary requirements. The educational value of the work of such a department can not be overestimated. In cases of emergency, at the request of local authorities, such a bureau should be prepared to send experts to advise or assist the local authorities in dealing with any unusual or alarming epidemic. In my opinion the bill which has passed its second reading, and is in committee, in the United States Senate does not at all satisfy the requirements of such a department. Under the provisions of this bill unusual powers are placed in the hands of the Secretary of the Treasury, or, in other words, in the hands of the Supervising Surgeon-General of the Marine Hospital Service. The Marine Hospital Service was not designed, nor is it competent, to perform the functions of a national bureau of health. It has the supervision of a large series of hospitals for the care of sick seamen. The duties connected with such work do not in any way fit members of the service to perform those required of a national bureau of health. In Great Britain the Local Government Board exercises powers similar to, but more extensive than, those suggested for this department. In my opinion, under the plan outlined, the establishment of a national bureau would soon result in the adoption of uniform methods and requirements throughout the United States.

MISCELLANY.

The Modern Treatment of Prostatic Trouble.—Whatever may be the preferences or conclusions of surgeons regarding a choice between castration and vasotomy, one thing is very certain that after the latter operation the patient will notice a *vas deferens*.

A Recent Appointment.—Dr. Marie Louise Benoit of Lowell, Mass., has been appointed medical interne in the New York State Craig Colony for epileptics at Sonyea. She claims the honor of being the first woman so honored.

Treasured Prescriptions.—Among the archives of the Vatican has been found a collection of copied prescriptions in the handwriting of Michael Angelo. As the artist was much troubled with failing sight during the wane of his life the remedies were intended in all probability for senile cataract.

A Change.—Dr. R. Harvey Reed has accepted the position of superintendent and surgeon in charge of the Wyoming General Hospital, located at Rock Springs, Wyo. This Hospital will be opened for patients about April 1, 1898, and when completed will have accommodations for eighty beds. Dr. Reed will continue with the Columbus Medical Company as one of the associate editors.

A Gift to the New York Academy of Medicine.—At its recent meeting the following nominations were made: Vice-presidents, O. B. Douglas and W. H. Katzenbach; recording secretary, M. Allen Starr; treasurer, H. E. Crampton. The Board of Trustees reported the gift by Mrs. Anna Woerishoffer, of $15,000 to the library endowment fund and it was decided that this sum be set aside as a special fund to be known as the "Anna Woerishoffer Fund."

Bureau of Medical Literature.—Dr. Carl H. von Klein has opened a bureau of medical literature at No. 243 East Erie Street, Chicago, to furnish medical literature to medical writers on every subject from its earliest history, and from every language in which medicine is written. Dr. von Klein needs no introduction to the profession; he is well known as one of the most accomplished linguists on both sides of the Atlantic. His latest translation of Fischer's "Surgery One Hundred Years Ago," is acknowledged praiseworthy by the best critics. The profession will welcome such a bureau, for through it the busy physician will be able to obtain a little rest, while Dr. von Klein will make his researches and translations. The country practitioner can thus take advantage of the nearly one hundred thousand volumes of medical literature in the city of Chicago, including the libraries of the AMERICAN MEDICAL ASSOCIATION, the Senn collection (which includes the Baum and DuBois Reymond libraries), the Newberry, and European medical journals which are kept on file in the various medical libraries. The Editor of the JOURNAL joins with many others to wish Dr. von Klein much success in his worthy pursuit.

Organized Opposition to Hospital Abuses at New York.—A stormy session was held before the New York City Board of Estimate recently over giving away of the public money to the so called "private charities" and teaching institutions. Dr. F. R. Sturges was spokesman for the league. He was supported by representatives of the County Medical Society, the County Medical Association and the New York Medical Society. These Societies have appeared annually for several years to oppose such appropriations. They were met heretofore with the statement that the State fixed the amount the city should give. Under a recent law the amount to be paid to each charity is made discretionary with the Board of Estimate. League members fought hardest against the giving of assistance to college hospitals, holding that such institutions receive tuition fees from students and take charity patients, not from benevolent motives, but that they may have clinic patients. The league held that instead of giving so much money to private charities the city should increase its appropriations for the department of charities, that there might be more public hospitals. League men charged that doctors made personal profit from private hospitals for which public moneys were demanded, and officers of hospitals replied that the doctors who protested represented a political organization. The Sloane Maternity, with which the names of divers millionaires are identified, was among those that were attacked, as also was the Post Graduate Hospital's baby-ward. One institution received over $300,000, and the total grant to twenty-five beneficiaries was $1,312,000. And there are still others to be acted upon at an adjourned meeting.

Health Authorities unendowed with Police Powers.—The appellate courts in New York State are quoted as "steadily putting a curb upon the arbitrary and unwarranted exercise of what is known as the police power, in behalf of the health authorities of cities and towns. These officials, not always content with doing what is appropriate to preserve the public health, go far beyond that and interfere inexcusably with property rights." A recent case in New York City furnishes the inspiration of a decision which may bring far-reaching complications in its train. Here the department properly procured an order preventing the use of the property for tenement purposes, on account of its condition. The order went further and directed the destruction of the buildings, although there was no proof that they could not be put to other uses without constituting a nuisance. This the appellate division holds to be wrong, saying that the right to destroy the buildings does not exist, unless they were incapable of being put into such a condition that they would be dangerous to the public health. A lawyer in the case remarked that "exceeding peace had made Ben-Adam bold."

Test of the Army Emergency Ration by Infantry.—Two companies of the Fifth U. S. Infantry were directed by the War Department to make a five-day march from Fort McPherson, Ga., to test the use of the emergency ration. Maj. B. D. Taylor, surgeon, who accompanied the troops, reported that the test of the efficiency of the ration, so far as the men were concerned, was a failure, as it was impossible to be certain that they used it exclusively. One of the company commanders states that the men had been paid the day before starting on the march and thus had the means of purchasing such articles as they desired; and that as they marched through a country abundantly supplied with poultry, milk, butter and eggs, they availed themselves of their opportunities to purchase these articles. Six companies of the regiment, marching over the same ground, were living on the field ration, and had fresh meat and fresh bread nearly every day. Under such conditions it was regarded as hardly to be expected that the men on the emergency ration would live on the same monotonous diet for five days, especially when they were constantly being invited by their comrades of other companies to share their meals. The commissioned officers of the two companies messed together, along with the surgeon, and these lived on the ration exclusively for four days. The surgeon expressed himself as being of the opinion that the ration was amply sufficient, so far as its nourishment is concerned, to sustain life for five days under the strain of the marches made. He found only one man who was able to eat the whole allowance of sixteen ounces hard bread. In fact, all the officers considered that there was an excess of hard bread and pea meal in the ration and suggested a reduction in the quantity. The reports of these officers have been subjected to very unfavorable comment by Deputy Surgeon-General Smart, who conducted the test of the ration made by the First U. S. Cavalry in May last, to whom the reports of the experiment by the Fifth Infantry were submitted. Dr. Smart in his indorsement, which is concurred in by Surgeon-General Sternberg and Commissary General Bell, says:

"These reports show a total misapprehension of the objects of the expedition, and illustrate the necessity for instructing company officers, if the emergency ration is to be of value in times of actual war. The five days' rations, according to the views of the Emergency Ration Board, contain food material sufficient to sustain troops for five days under the maximum strain of war service, and every one who has roughed it on hard bread, bacon and coffee, will acknowledge that there is enough. Troop E, First Cavalry, made a ten days' march in May last on the five days' rations, and the men were in fine spirits and excellent athletic condition at its close. There is no question, therefore, of the ability of five days' rations to sustain men for five days; nor is there any question of the ability of troops to economize their five days' rations so as to make them suffice for a longer period if the officers exercise the necessary supervision over the diet of the men. The experiences recorded in the enclosed reports can not be accepted as in any way a test of the emergency ration. They are, if anything, a test of whether men making light marches could eat and digest in five days what was intended, if need be, to last them for ten days. As might have been expected, they could not. They found the hard bread and pea meal too much for them, but their recommendation that the quantity of each in the emergency ration be reduced, has no value because made in the evident absence of an understanding of why the quantity in the ration was larger than they could eat during their march. The aims of the officers of these commands in making this march as a test of the ration should have been to see that the men lived on the ration, and on the articles of the ration alone, to see that as the men had more than enough at command they did not do themselves harm by overeating, and to see that no part of the ration was destroyed or thrown away, so that at the close of the march a report could have been made of how much of each article had been used under the conditions of their five days march. Another of the objects of a test march by infantry should have been to determine the best way for the soldier to carry his rations. One report says that there is no difficulty in carrying five days' rations, but the best method of packing on the person of the soldier is not specified; while from another report it is gathered that only half a day's ration was carried on the person. Obviously, as the most elementary points connected with testing the value of the emergency ration do not seem to have been appreciated on this march of companies of the Fifth Infantry, the reports of the march have no bearing on the sufficiency or insufficiency of the ration."

Cincinnati.

THE WEEKLY MORTALITY REPORT shows: Still births, 7; zymotic diseases 12; phthisis pulmonalis, 15; other constitutional, 9; local diseases, 57; developmental, 6; violence, 5; under 1 year of age, 20; under 5 years, 32; total, all causes, 104; preceding week, 106; corresponding week, 1896, 120; 1895, 124; 1894, 123.

THE STATE BOARD OF MEDICAL REGISTRATION has been successful in securing the indictment of nine illegal practitioners, and in the case of the State of Ohio vs. France gained a victory in the supreme court by not only having the decision of the lower court affirmed in the matter of the fine imposed, but also the constitutionality of the medical law upheld.

DR. J. B. HOUGH of Lebanon, Ohio was found dead at his home December 3. Dr. Hough was 70 years of age and occupied the chair of chemistry in the Miami Medical College of Cincinnati for a number of years.

THE following half-yearly changes in the staff of the Cincinnati Hospital occurred December 1: Dr. N. P. Dandridge and Dr. E. W. Walker relieve Dr. J. C. Oliver and Dr. Jos. Ransohoff; Dr. E. W. Mitchell relieves Dr. Jos. Eichberg; Dr. C. S. Evans relieves Dr. A. Ravogli; Dr. S. C. Ayres relieves Dr. Geo. H. Good; Dr. W. H. Taylor and Dr. Chas. A. L. Reed relieve Dr. G. M. Allen and Dr. C. D. Palmer; Dr. F. W. Langdon relieves Dr. H. H. Hoppe; Dr. S. E. Allen relieves Dr. Max Thorner; Dr. B. K. Rachford relieves Dr. Allyn Poole, and Dr. Chas. H. Castle takes the orthopedic department.

DR. GILBERT I. CULLEN has returned after an extended tour abroad. He attended the International Medical Congress at Moscow, the Leprosy Congress at Berlin and the French Surgical Congress at Paris.

THE HEALTH DEPARTMENT has just issued a list of all physicians in Hamilton County who are duly registered by the State Board of Medical Registration, together with the date of their graduation and registration, college, school practiced and residence.

The Department of Health has announced that in view of the generally accepted theory of the contagious character of tuberculosis, all cases are to be reported just as other contagious diseases. There is no announcement made, however, which refers to the compensation that the physician is to get for performing this act of precaution for the good of the general public. The Department is also to examine all children who have had diphtheria or have been exposed to it, and they are not to be allowed to return to school until their throats fail to present the Klebs-Loeffler bacillus. The attending physician is to make the examination, the Health Department furnishing the culture tubes and making the culture examination free of charge. In order to carry out the above plan the following rules have been adopted: 1. The culture must be made not less than seven days after the physician has notified the department that the patient has been dismissed. 2. If the examination of the culture is negative the quarantine will be raised in four days from the time of examination. If the culture shows the Klebs-Loeffler bacillus the physician will be informed and another culture must be made in not less than one week after the first culture. 3. In any case where the physician in charge does not desire to make the culture for raising the quarantine the health department will have the culture made at the end of two weeks after the patient has been dismissed.

A case of tænia echinococcus or hydatid liver has developed here and has aroused considerable interest. Several large cysts have developed and the presence of the parasite has been demonstrated. The disease is a very rare one in this country, Osler being able to collect the records of but eighty-five cases that have occurred in the United States and Canada up to the present time.

Philadelphia.

The State Medical Board of Examiners and Licensers held its winter session during the week ending December 18. There were 103 applicants, out of which number 34 failed to receive the average permitting them to receive the certificate and license. Among the applicants were some holding diplomas from institutions in Germany, England, Italy, Russia and France, but the majority as usual were graduates of last spring from Pennsylvania schools. Thirty of the candidates were recent graduates who had failed to pass at the last examination. Unfortunately for them, the majority of those rejected were also from this group, which seemed, at least in three instances, to prove conclusively the inadequacy of the test offered by the final examinations at the colleges. Some of them were totally unfit, as may be inferred from the following specimen replies: To the question, "What is metabolism?" One man replied: "It is the perasstasis of the blood," and as to the characteristic changes and clinical appearances occurring in tubercular arthritis evoked the following: "The liver and kidneys do not function properly and the skin is covered with lumps." Among those who passed with distinction was one whose professional character and personal worth would have been gladly acknowledged by the Board by granting the license without requiring him to submit to the indignity of the examination with this year's graduates, and, indeed, a motion to omit the examination in his case was entertained by the Medical Council, but it was found that the law was mandatory and ironclad, permitting no exceptions to be made whatever. This was Dr. W. L. Rodman, who has recently come here from Louisville, Ky., to accept the chair of the Principles of Surgery and Clinical Surgery in the Medico-Chirurgical College, and who has been warmly welcomed to the ranks of the profession in this city.

The Academy of Surgery met December 6 and elected Dr. J. Ewing Mears president to succeed Dr. Thomas G. Morton, who had served for three successive terms. A death during the administration of ether was reported by Dr. T. G. Morton at this meeting. The patient was about 60 years of age and had been admitted to the Pennsylvania Hospital for gastric disorder of a year's standing, malignant disease being suspected; pyloric stenosis and dilatation of the stomach was known to exist. Ether was administered in order that an exploratory operation might be made. The patient took the anesthetic badly and there were such convulsive movements of the diaphragm and abdominal wall that it was impossible to close the wound after the section had disclosed an inoperable fusiform cancer of the pylorus and infiltration of the stomach wall. A few drops of chloroform were given, while the ligatures were rapidly applied, but the patient vomited freely a thin, gruel-like fluid and shortly afterward stopped breathing and all efforts at resuscitation failed. The autopsy by Dr. Cattell, the coroner's physician, showed that suffocation had caused death, the bronchial tubes being completely filled with the same thin tenacious fluid which was found in the stomach. Dr. Morton pointed out that in cases of dilated stomach, abstinence from food on the day of operation is not sufficient and he advocated washing out the stomach in such cases as an important precaution to be taken before the administration of ether.

At the December meeting of the College of Physicians, Dr. John B. Deaver read a paper entitled "X-Ray Pathology of Fractures about the Elbow," which he illustrated with the aid of the stereopticon.

The Obstetrical Society held its meeting December 2. The more important communications were one by Dr. Joseph Eastman of Indianapolis on "The Question of Pelvic Support," and one by Dr. Joseph Taber Johnson of Washington, D. C., on "The Best Way of Treating Pus Collections in the Pelvis; the Abdominal versus the Pelvic Route." After a discussion of the subjects by Drs. J. M. Baldy, Charles P. Noble, W. E. Ashton and others, the Society attended a reception in honor of its guests, at which Dr. E. E. Montgomery presided as the host, at the University Club.

A Charter has been granted for a new hospital for contagious diseases, which is to be called the "Health Protective Hospital for Contagious Diseases," in honor of the Woman's Health Protective Association, which has been actively engaged in sanitary work for several years in this city. The announcement has been made that a site has been secured by the purchase of property at Twenty-second Street and Lehigh Avenue, Philadelphia, opposite the Municipal Hospital. The necessity for a pay hospital for such diseases as scarlet fever and diphtheria has been acknowledged for several years, and its establishment has been advocated especially by the late Dr. William H. Ford, president of the City Board of Health; Dr. W. M. Welch, chief physician of the Municipal Hospital, and by Dr. Benjamin Lee, secretary of the State Board of Health. The work has been accomplished by the labors of a joint committee from the Woman's Association above named and from the Philadelphia County Medical Society, the members of the latter being Dr. J. Madison Taylor, chairman; Drs. Edwin Rosenthal, George M. Gould, James Tyson, Frederick P. Henry and Edwin E. Graham. The committee has had weekly meetings for nearly two years, the scientific work and plans being in charge of the medical representatives, while the active labor of providing funds was accomplished by the women representing the Health Protective Association.

The Dental School or Department of the Medico-Chirurgical College is now in full running order and is equipped with the latest appliances, including electric lathes and motors.

The last meeting of the Medical Club was devoted to a reception in honor of Prof. Howard A. Kelly, M.D., of Johns Hopkins Hospital.

Charter for a Faith-Cure Corporation Refused.—In Court of Common Pleas, No. 2, Judge Pennypacker recently handed down an opinion in which he refused to grant a charter to the "First Church of Christ Scientist" and delivered an important ruling as to the reasons why the incorporation of a church, having the practice of faith-cure as one of its objects, is contrary to the laws of Pennsylvania. The chief criticism of the proposed charter was that it conflicted with the act regulating the practice of medicine and requiring all candidates for license to successfully pass an examination before the State Board of Examiners and Licensers, and to have had a previous training of four years in certain prescribed studies, whereas the proposed charter would confer the authority upon the so called church to empower any of its members to treat the most serious diseases although not qualified by the proper course of medical studies or duly licensed by the State Board. "It is quite clear" said the Judge, "therefore, that what is proposed is much more than a church since there is besides to be established a system for the treatment of disease, to be carried into effect by persons trained for this purpose who may receive compensation for their services."

THE STANDARD MEDICAL HISTORY OF PHILADELPHIA, compiled by Frederick P. Henry, M.D., has just appeared in a handsome imperial octavo volume, which is published by a Chicago firm and is for sale by subscription only. It is freely illustrated and contains much valuable historic material of more than local interest, especially with regard to the origin and early struggle of our medical institutions.

THE PHILADELPHIA MEDICAL JOURNAL, a new $3 weekly, edited by Dr. Geo. M. Gould, issues its first number Jan. 1, 1898. As it is not controlled by any publishing house or commercial corporation, it may be expected to be thoroughly independent and to serve no interests other than those of the medical profession. It is published by the Philadelphia Medical Publishing Company, representatives from the leading medical schools being members of the Board of Trustees, who are to be elected annually, and to whom is entrusted the management of the affairs of the Company.

Detroit.

AT THE regular meeting of the Detroit Medical and Library Association, held December 6, Dr. George Duffield presented a paper entitled "Guaiacol in the Treatment of Typhoid Fever." The author first took up the internal administration of the drug. The object is the introduction of an antiseptic drug into the intestinal canal, and the author finds that guaiacol is better than any other remedy for this purpose. He said: "I have never noticed any antipyretic effect when the medicine is administered internally. I give it for its antiseptic properties alone, and I am sure that I accomplish the end sought, because the stools are redolent with the characteristic odor, showing that the medicine must have passed the diseased surfaces as guaiacol and rendered the part aseptic by its presence there. When the stomach is so irritable that the pure guaiacol can not be administered, then we have recourse to the carbonate. I have used Woodbridge's method for several years, and believe his plan is successful in producing an aseptic condition of the intestinal canal, but it is slow, and I believe his plan can be modified so as to produce better effects. I use calomel with or without podophyllin, at first every hour or two until the bowels are thoroughly moved and the flow of bile, nature's antiseptic, is established. Saline waters increase the effect of these drugs and the effect of the guaiacol is augmented." The author next took up the external application of guaiacol. The Doctor stated that the best possible point for the application is on the skin of the abdomen over the ileocecal valve. After thoroughly washing the surface with soap and water, 15 to 30 minims of the liquid is dropped upon the skin and gently rubbed in by an attendant for ten minutes and the area is then covered with cotton and oil silk. The dose should not exceed 30 minims, for often such application is followed by great depression, profuse sweating and sharp chills or other symptoms of collapse. Its effect, when properly applied in the proper dose, is to cause profuse perspiration, the temperature declines and continues to descend for three to four hours. "The pulse grows full and strong and its rapidity lessens in proportion to the reduction of the temperature: the patient shows no signs of cyanosis and invariably says he feels 'first class.' I have noticed that when it has been applied frequently for three or four days, in typhoid fever, a decided reaction takes place and the temperature gradually declines and reaches normal at an earlier period than it otherwise would have done. This treatment can be used with the Woodbridge method to advantage, as something else beside the tablets, which are necessarily slow in their action, should be used to reduce high temperature." No blistering or inflammation of the skin is produced when the drug is applied. "That it is far superior to the cold bath in the treatment of typhoid fever, I believe. It is easy to apply and is safe and efficient."

HEALTH REPORT for week ending December 18: Deaths 77, under five years, 30. Births, male 40, female 36. Contagious diseases, diphtheria 15, scarlet fever 62. Deaths from diphtheria 2, from scarlet fever none.

THE PUBLIC SERVICE.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the two weeks ending December 24, 1897.

Surgeon A. C. H. Russell, detached from the "Lancaster" and ordered home on waiting orders.

Medical Inspector J. G. Ayers, ordered to duty at the navy yard, Portsmouth, N. H., January 17.

Medical Inspector J. B. Parker, detached from the navy yard, Portsmouth, N. H., and ordered to duty as member of the naval medical examining board, Washington, January 22.

P. A. Surgeon T. B. Bailey, unexpired leave revoked, and ordered to the Washington navy yard.

CHANGE OF ADDRESS.

Banton, W. C., from Chicago to 210 Grand Av., Waukegan, Ill.

Burwell, W. M., from Chincoteague Island to Wallis, Va.

Beavis, A. J., from 110 15th St. to 1429 Pearl St., Denver, Colo.

Cobb, J. O., from New York, N. Y., to U. S. Marine Hospital, Detroit.

Cresswell, G. W., from Arvada, Wyo., to 8 De Kalb St., Chicago.

Cline, L. C., from 42 E. Ohio St. to 222 N. Meridian St., Indianapolis, Ind.

Cook, J. F. D., from Clark to Langford, S. D.

De Witt, J. P., from Pierce to 308 S. Cleaveland Av., Canton, Ohio.

Hart, A. C., from 1170 Market St. to Claus Spreckel's Bldg., San Francisco, Cal.

Lawbaugh, A. I., from Opechee to Calumet, Mich.

McConnell, J. W., from 1909 Chestnut St. to 2925 Fairmount Av., Philadelphia, Pa.

Meany, W. B., from 3967 W. Bell Pl. to 1608 4th Av., St. Louis, Mo.

Platou, L. A., from Cooperstown to Valley City., N. D.

Quigley, J. M., from 218 Powell St. to Waller and Clayton Sts., San Francisco, Cal.

Reed, R. H., from Columbus, Ohio, to Rock Springs, Wyo.

Riley, E. A., from Starfield, Mo., to Hoyt Kas.

Terry, Jr., M. C., from Brighton, Iowa, to Fort Shaw (via Sun River), Mont.

LETTERS RECEIVED.

Atkinson, W. B., Philadelphia, Pa.; Ashmead, Albert S., New York; American Therapeutic Co., New York.

Burr, C. B., Flint, Mich.; Barnham, F. G., Los Angeles, Cal.; Bulkley, L. Duncan, New York; Boteler, W. C., Washington, D. C.; Bell, F. A., Dallas, Texas; Beale, G. E., Freehold, Pa.; Brown, Margaret (Mrs.) Stratford, Canada; Ball, M. V., Warren, Pa.; Biddick, S. G., Henrietta, Texas; Battle & Co., St. Louis, Mo.; Burnham, H. B., Manchester, N. H.; Bryan, Charles, Corn, W. Va.; Baird, James, Evanston, Ill.

Coleman, W. F. Chicago; Crane, A. W., Kalamazoo, Mich.; Clarke, Augustus P., Cambridge, Mass.; Chas. Truax, Greene & Co., Chicago; Cleveland, Theodore P., Baltimore, Md.; Chicago Eye, Ear, Nose and Throat College, Chicago; Chicago, Milwaukee & St. Paul Railway Co., Chicago. Colville Bros. & Perry, Galesburg, Ill.; Coneanon, James J., New York.

Deaver, John B., Philadelphia, Pa.; Dow, Daniel C., Cambridgeport, Mass.

Elgin Milkine Co., Elgin, Ill.; Elliott, H. G., New York; Eagleson, J. B. (2), Seattle, Wash.

Friend, Samuel H., Milwaukee, Wis.; From, F. J., Templeton, Iowa; Fougera, E. & Co., New York; Fisher, G. C., Ann Arbor, Mich.; Farrington, John M., Binghamton, N. Y.; Finley, G. W., Harmony, Ind.

Garber, J. B., Dunkirk, Ind.; Griffith, J. D., Kansas City, Mo.; Gould, George M., Philadelphia, Pa.

Haldenstein, I., New York; Henry Pharmacal Co., Louisville, Ky.; Henry, K. S., Charleston, W. Va.; Haughton, R. E., Richmond, Ind.; Horlbeck, H. B., Charleston, S. C.; Hare, H. A., Philadelphia, Pa.; Hayden, A. M., Evansville, Ind.; Harris, J. J., St. Louis, Mo.; Hunsberger, J. Newton, Skippack, Pa.; Howe, Lucien, Buffalo, N. Y.; Hygeia, The, Citronelle, Ala.; Hobart, John F. (2), Cincinnati, Ohio; Hull, W. H. H., & Co., New York; Hummel, A. L., Adv. Agency (2), New York.

Imperial Granum Co. (2), New Haven, Conn.

Jefferson Medical College, Philadelphia, Pa.

Kirch, F. A., Toledo, Ohio; Keller, Maus & Co., Chicago.

La Rue, F. G., Hampton, Ky.; Library Surgeon General's Office, Washington, D. C.; Larned, E. R., Joliet, Ill.; Little, J., Bloomington, Ill.; Langdon, F. W. (2), Cincinnati, Ohio.

Merrick, M. B., Passaic, N. J.; Moore's Newspaper Subscription Agency, Brockport, N. Y.; Manley, Thomas H., New York; Murfree, J. B., Jr., Murfreesboro, Tenn.; McIntosh, J. M., Connersville, Ind.; Middlebrooks, J. B., Bryans Mill, Texas; MacClure, Thos. R., Lansing, Mich.; MacPherson, F., Dunlap, Mo.; McIntosh Battery and Optical Co. (2), Chicago.

Newbecker, Minerva M., Asylum, Neb.; Newell & Hehlman, Chicago; Nutt, G. D., Williamsport, Pa.; Norwich Pharmacal Co., Norwich, N. Y.

Oakland Chemical Co., New York; Od Chemical Co., The, New York.

Parke, Davis & Co. (2), Detroit, Mich.; Parker, W. Thornton, Groveland, Mass.; Plummer, J. W. V. R., Key West, Fla.; Powell, Thomas, Los Angeles, Cal.; Post, S. A., Weston, W. Va.; Powell, R. H., West Milford, W. Va.

Rossiter, F. M., Battle Creek, Mich.; Roberts, William, Fort Adams, R. I.; Rowe, Thomas C., Coal Bluff, Ind.; Ramsay, R. T., London, Ky.; King, E. P. C., Philadelphia, Pa.; Rosenthal, Edwin, Philadelphia, Pa.; Russell, F. H., Bluffdale, Ill.

Segur, Gideon C., Hartford, Conn.; Sullivan, T. J., New Frankfort, Mo.; Stallman & Fulton, New York; Simpson-Martin, J. M., Massey, Texas; Spivak, C. D., Denver, Colo.; Stewart, Douglas H., New York; Stothers, A. H., Bedford, Quebec, Canada; Savage, G. C., Nashville, Tenn.; Stowmaker, John V. (2), Philadelphia, Pa.; Schwab, L. W., Chicago, Ill.; Sandler, Emma, St. Louis, Mo.; Scott, J. B., Hamilton, Ohio; Scott, N. Stone, Cleveland, Ohio; St. John, Leonard, Chicago; Sinkler, Wharton, Philadelphia, Pa.; Smith, A. E., Utica, Ohio; Smith, D. C. M., Richmond, Kas.; Smith, Q. C., Austin, Texas; Smith, Kline & French Co., Philadelphia, Pa.; South, Frank Trester, Chattanooga, Tenn.

Tyree, J. S., Washington, D. C.; Traunweiser, S., Merchantville, N. J.; Tuley, Henry E., Louisville, Ky.

Vande Rouvaart, J. F., Chicago; Van Nostrand, D., Co., New York.

Way, J. Howell, Waynesville, N. C.; Wetherill, H. G., Denver, Colo.; Woodbury, Frank, Philadelphia, Pa.; White Rock Mineral Spring Co., Waukesha, Wis.; Wilton Publishing Co., The, New York; Weaver, W. H., Chicago; White, F. D., Limestone, Me.; Wolfstein, David I., Cincinnati, Ohio; Wandless, Henry W., Dallas, Texas; Wardemann, H. V., Milwaukee, Wis.

Yolton, J. L., Bloomington, Ill.

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ADDRESS.

CHAIRMAN'S ADDRESS.

Delivered in the Section on Physiology and Dietetics, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1-4, 1897.

BY AUGUSTUS P. CLARKE, A.M., M.D.
CAMBRIDGE, MASS.

The physiology of the various structures of the organism and the choice of the pabulum best adapted to their conservation are subjects that should command our most careful consideration. Formerly when disease was regarded as an entity and a visitation of an offended deity, only little, of course, could be expected to be achieved by dietetic measures. Success that could be obtained, however, by treatment of disease through a change or a restricting of the diet is by no means a modern discovery; the medieval and the ancient writings on medicine reveal many references to the subject. Thus the works of Hippocrates, the "Father of Medicine," show that he was not unacquainted with the evil effects arising from an unwise selection of articles of diet; he speaks of the enervation that results to the constitution from abstinence of food. Knowledge of the fundamental principles of dietetics is essential for the conducting of the cure of disease. There is no question that many morbid processes can be greatly modified by adopting a strictly regulated system of diet. It is largely through the researches made in physiologic chemistry that much of our knowledge has been obtained. Before such results had been acquired the methods of practice were merely theoretic.

One serious mistake that is often made is in prescribing articles of diet without having sufficient data for determining the needs of the organism. There should always be kept in view the importance of obtaining in each individual case a definite knowledge of the proportion that the ingesta bear to the egesta of the system. For ascertaining this relation, the habits and surroundings of the patient should be considered. It is evident that a person who is accustomed to sedentary occupations requires a more restricted diet than one who spends a large proportion of his time in active pursuits in the open air. An increase of weight is not always an indication that the selection of the food has been wisely made, nor, on the other hand, is a diminution of the measurements of the organ a sign that the food is ill-adapted to the needs of the body. The question that should be most carefully considered is whether the food has been sufficient to meet the demands of the normal excretion. The habit of introducing into the system agents that tend to lessen the metamorphosis or waste of tissue should not be overlooked in deciding as to the relative merits of different articles of diet to be employed.

Some physicians are inclined to prescribe, in their routine practice, the kinds of food that have apparently met their own fancied individual needs. Such a course should be looked upon as most unscientific. No class of foods, whether they be of beef, mutton or of fowl, or even of fish, should be selected in preference to all others for the prevention or cure of disease. In deciding what should be taken, reference will have to be made to the analysis of the excreta to ascertain what products have been normally voided, and what proportion of the water and of the chemic elements, carbon, hydrogen, oxygen, nitrogen, and of the sulphates, phosphates, chlorids, potassium and sodium has been eliminated. An examination should be made of the effete matter as comprised in the term carbon dioxid and certain forms of ammonia that are given off through the respiratory processes; the necessity of such investigation should be particularly borne in mind when called to the treatment of those cases in which the lungs have become the disease center. The urinary and perspiratory elements of excretion should also be examined. There can be no doubt that the exhausting nocturnal hyperidrosis accompanying tuberculosis is due to poisonous products that are determined to the lung tissue for elimination; doubtless such a sequel is often superinduced by the failure of other emunctories of the organism.

The utility of a diet's embracing the proteid elements to be administered in many forms of the disease should demand attention. In order to observe the effects of such ingesta the metabolic force of the living cells should in particular cases be measured by actual experiment. There are unquestionably varying degrees of metabolism as possessed by different individuals. The most important feature of the results of indulging in an excessive use of the proteid elements of diet is, notwithstanding that a condition of nitrogenous equilibrium prevails, the tendency to the production of podagric and other allied affections. The system when once brought under the influence of such a dyscrasia becomes readily the center of other diseases. Chronic inflammation of the kidneys is liable to ensue, so, also, are certain forms of interstitial hepatitis; iritis and even meningitis are not infrequent accompaniments of a gouty diathesis. Inquiry regarding the effects of the continual use of carbohydrate food will often have to be made.

The theories that are entertained by physiologists can not always be depended upon as affording facts sufficiently comprehensive for guiding the practitioner in his daily work. Much has been said against the use of starchy foods for the general diet; I apprehend, however, that many experiments that have been made on dogs for the purpose of settling certain questions in regard to the effects on the system of many kinds of food, should be received with some misgivings. Carbohydrates, as is well known, are liable to induce dyspepsia and other gastric troubles; the unpleasant effects of the employment of amylaceous foods may be obviated by a more free use of water. Starch, it must be remembered, is largely composed of carbon dioxid and water. To facilitate its more rapid decomposition into its ultimate elements, water at the temperature of the body is essential. The chlorophyll or the green coloring matter of plants, that manifests such peculiar action in the decomposition of carbon dioxid and in fixing the carbon in new structures in the form of new compounds, owes its potency in some measure to the aqueous element with which it is always associated.

In establishing what should be a proper diet, many factors will have to be taken into account. Age, habits, exercise, climate, temperature, altitude, strength and perhaps sex, are conditions that must go far toward determining what should be the individual diet of the patient. As said before, a proper balance between the ingesta and the egesta should be maintained. For brainworkers food that is readily assimilable should be taken; the same should be prescribed for invalids.

In the endeavor to reduce excessive obesity by substituting or replacing, almost entirely, the proteids for the carbohydrates, the fact should not be overlooked that there is danger of setting up urinary troubles and of causing vesical calculus, renal disease and contracting kidney. These results by such change in diet have occasionally occurred in my practice. Of the proteids (albumin, casein, myosin, gluten, legumen, etc.) the chief in flesh diet is myosin associated more or less with globulin, serum, albumin, gelatin, elastin and hemoglobin. These are all originally obtained by the animal from the products contained in nitrogenous grasses, herbs and plants.

The question is often asked, why can not man by increasing his knowledge through scientific investigation make a wise and judicious selection of vegetable proteids that will satisfy his real demands for nourishment without having to resort to the consumption of animal food? I might here remark that though the wages of the peon workman of Mexico are ridiculously cheap, about three bits (thirty-seven cents) a day, he is able, on account of the climate being most congenial to his nature, to earn in twelve days, as it has been estimated, enough to meet the actual requirements as regards the necessaries of life for the rest of the year. "He does not eat," says Charles H. Lummis (*Harper's Monthly*, March, 1897), "much meat, nor does anyone except a stupid in that climate." Observations made during my recent visit in Mexico tend to confirm the truth of the above statement. Reference to the attainments of the early inhabitants of Mexico opens up for consideration some very important questions in regard to diet. The ancient Mexicans in their habits and acquirements were unlike in many respects those races of the Orient. If they were ignorant of the advantages to be derived from the use of cereal grains they were unacquainted with the nutrient properties of milk and with pastoral pursuits. The food of these early people must have consisted for the most part of fruits, plants, honey, fish and the juice of the maguey. Meats, even of the lighter grades, were merely incidental to their dietary list.

In considering further the question in regard to the necessity of the consumption of animal food for the growth and preservation of the races, it should be said that the ox, the sheep and the other animals whose flesh is esteemed the most essential for the support of mankind, do not derive their nitrogenous compounds by the consumption of other animals; they obtain such properties merely by the ingestion of grasses, herbs and other elements of the vegetable kingdom. The eating of so much food as the present American people are accustoming themselves to can but be regarded as a more slothful way of obtaining their necessary nitrogenous sustenance and must, therefore, eventually tend to the deterioration of the present inhabitants. A little more activity put forth in the search among the vegetable products for food necessary for the preservation and development of the races of our clime would undoubtedly facilitate the excretion of effete matter and establish a proper balance between the functions of assimilation and excretion.

In the hot climate of India the teachings of the Brahmins forbid the killing of animals for the consumption of their flesh. Many animals in that country are regarded as sacred or as containing the spirit of some departed monarch or chieftain. Perhaps the belief in the creature having such a possession was originally encouraged as a sanitary measure to prevent the indiscriminate use of the diet of flesh. In conversation some time since with a learned Brahmin who was visiting this country I learned that most of our Christain missionaries to India indulge freely in the use of animal food, and thus by persistently refusing, in the choice of their food, to adopt the prevailing custom of the higher castes finally fail to become acclimated and so are compelled after a few years' residence to leave the country. Suffering from boils, abscesses and internal disorders often hastened or superinduced by an over-stimulated diet is not, he said, an uncommon occurrence among these "Soldiers of the Cross." I am by no means an advocate of the exclusive use of a vegetable diet, but I feel confident, nevertheless, that before the advantages of many different articles for varying conditions can be established, many pet theories will have to be abandoned and an investigation carried out on a more scientific basis than heretofore attempted will have to be undertaken.

In connection with the functional activity of the several parts of the human organism and the food best adapted for their conservation there are, as said before, many modifying factors that should be taken into consideration. Prominent among them is the variation of the hematosis that is caused by high altitudes. Man can become accustomed to the influence of elevated centers; when long subjected to the controlling forces of the higher levels his fluids become more concentrated, his respiration and circulation are accelerated and the deficiency of oxygen is compensated for by the increased activity of sanguinification.

It has come to be more recognized that the presence of pure oxygen exercises a most potent influence on animality. During the early geologic ages, according to T. L. Phipson, nitrogen almost entirely constituted the earth's atmosphere. As vegetation advanced oxygen was more freely disengaged from the deeper centers and the anaerobic cellule underwent a modification; the anaerobic organisms assumed more the nature of aerobic bodies until the nervous cerebrospinal axis reached the development under the forms in which it is now represented. Man may, however, feel the want of ingesting for his aliment a large proportion of the nitrogenous element, but this craving, it must be conceded, is in no small measure the outcome of atavistic tendencies.

Those who deny the development of man from the lower forms of animal life, but hold strictly to the view that when he did first appear he was invested with organs not unlike those which he now possesses and that the shape and condition of his incisor teeth were given him by an all-wise Creator for the purpose of fitting him, in part at least, for partaking of flesh, should remember that according to the Mosaic account man's sphere of activity was first limited to the confines of a garden, where he was allowed to eat, not of flesh, but of every fruit with the exception of one that was in the inclosure; that it was only after his expulsion from that favored spot that mankind through his hardness of heart was, at his own expense and suffering, granted many indulgences. Nitrogen as a constituent of the air serves merely as a diluent. As a component part of the tissues for the highest or even for the average type of man, who can say that its presence is absolutely essential?

There are still many unexplored fields in which physiologists can carry on work to great advantage. Research, to be of value, can only be made by careful experimentation. Those schools that are encouraging original investigation in this line of inquiry will receive the largest returns. In conducting experiments many problems should be taken into account; the influence of the tempearture on the form of muscle curve, the peculiar features of electrotonus, the rhythmic action of the heart, the duration of its beats, its compensatory pause and other phenomena that are exhibited should be carefully studied. Observations thus made should not be looked upon as conclusive as to results that will invariably follow in every individual experiment, for the functions of animals, even of the same class and under what would appear to be precisely the same circumstances and conditions, are continually undergoing change and modification in development. It is only by repeating experiments many times that an average result can be obtained. The importance, therefore, of the study of the morphology of the protococcus, the ameba and of the paramecium and their reaction to certain forms of electricity and individual stimuli will thus be more readily appreciated.

THE HISTORY OF THE SECTION OF PHYSIOLOGY AND DIETETICS.

The introduction of the Section of Physiology and Dietetics into the American Medical Association, though of a recent date, was a wise measure. It was done in response to the necessity of correcting many errors and misapprehensions in regard to the importance and value of many different kinds of food that are employed in the care of hospital and private patients and are consumed by the people generally. The place in which any work of importance was first accomplished was at the meeting of the Association at Detroit, Mich., 1892. An address on "Physiology" was delivered by the chairman, C. H. A. Kleinschmidt, Ph.D., M.D., Washington. "Epithelia" was the title of a paper by Ephraim Cutter, M.D., LL.D., New York. The other papers were: "The Marine Hospital of Boston," by George W. Stoner, M.D., Surgeon U. S. Marine-Hospital Service; "Food and Hygiene of All Ages," by John M. French, M.D., Milford, Mass.; "Medical Food Ethics, Now and to Come," by E. Cutter, M.D., LL.D., New York; "United States Army Rations and Military Food," by Capt. Charles E. Woodruff, M.D., Assistant Surgeon U. S. Navy; "United States Naval Rations," by C. A. Siegfried, M.D., U. S. Navy; "Diet, in its Relation to the Treatment and Prevention of Disease," by Augustus P. Clarke, A.M., M.D., Cambridge, Mass.; "The Paddock Pure Food Bill" was brought up and discussed. The publication of the above mentioned papers and a report of the meeting by the Secretary, Dr. Ephraim Cutter, are found in the colums of the Journal, 1892.

The officers of the Section in 1893 were: I. N. Love, St. Louis, Chairman; Ephraim Cutter, New York City, Secretary. The officers of the Section in 1894–95 were: E. H. Woolsey, Oakland, Cal., chairman; C. G. Chaddock, St. Louis, secretary; Executive Committee, I. N. Love, St. Louis; W. T. Bishop, Harrisburg, Pa.; Ephraim Cutter, New York. The program comprised: Address of Chairman, E. H. Woolsey, Oakland, Cal.; "On Food and Thrombosis," by Ephraim Cutter, New York; "Physiologic Treatment of Tuberculosis by Injection of Serum," by Paul Paquin, St. Louis; "Vital Resistance to Disease," by G. W. Finley, Harmony, Ind.; "Researches in Rapid Photography by Means of Edison's Kinetograph, and the Animated Reproduction by the Kinetoscope; Showing also by this Method the Present and Future Possibilities of Taking and Reproducing Certain Animated Physiologic Movements of the Larynx, Heart, Intestines, etc., with an Historical Account of Fifty Years of Photography," by J. Mount Bleyer, Naples, N. Y.; "The Influence of Atmospheric Electro-Barometric Oscillations," by John North, Toledo, Ohio; "The Physiologic and Pathologic Effects of Electricity, with Some Results of Practical Experience with Electricity," by E. H. Woolsey, Oakland, Cal.; "The Physiology of Instinct," by C. G. Chaddock, St. Louis; "Remarks on Test Meals," by Henry Salzer, Baltimore, Md.

The officers for 1895–96 were: H. Bert Ellis, Los Angeles, Cal., Chairman; Henry Salzer, Baltimore, Secretary. The members of the Executive Committee were: I. N. Love, St. Louis; E. H. Woolsey, San Francisco; H. Bert Ellis, Los Angeles; Augustus P. Clarke, Cambridge, Mass., chairman; Ephraim Cutter, New York, secretary.

This year an effort was made by your chairman and secretary to induce the leading members of the Association to make contributions to raise the standard to a footing with the other departments. How well they have succeeded in this regard it is not for them to say. It is to be hoped that this important branch of medicine will hereafter find representatives who at all times will gladly contribute to its support.

DISCUSSION.

Dr. Ephraim Cutter of New York—The history of this Section goes back to 1889 at least, for that year it was announced on the program at Newport, a special room was selected and assigned to it beforehand and arrangements were made for the solar projection of the morphologies of foods. Considerable money was spent by the Secretary, but another Section wishing the assigned room, the authorities withdrew it and furnished another room where the sun could not be had, and this was such a damper that not a paper was read, nor the three cases of men cured of Bright's disease by food exhibited! The whole thing failed because faith was not kept by the Committee of Arrangements.

In 1890 this Section was on the program at Nashville. E. A. Wood, Chairman; E. Cutter, Secretary. The Committee of Arrangements unwittingly failed to give proper accommodations for solar projection. A room was assigned for the meetings of the Section but when we went to take possession at the proper hour we found it occupied by some 150 to 200 young law students listening to a lecture from a professor! The Chairman was so disgusted that he would not do anything more, save to give an admirable address on "Food" in one of the general meetings, which was enthusiastically received and applauded to the utmost.

In 1891 the Secretary could not attend and can not report. This brings the history down to Dr. Clarke's report.

Our honored Chairman insists that complex foods must be given to the sick for cure of disease; in other words that there must be variety. With no disrespect to him, permit me to say that when man comes into the world normally he has but one food, milk; that he thrives wonderfully on it; that every tissue and organ not only thrive but grow and increase; that air is food and air is eaten twenty times a minute during life without change; that the writer has found in some diseases the best results with one food and that changing from one to multiple foods has done harm; further, that the cure is wrought by nature or the Divine power, being furnished with the fewest foods that can furnish material for all tissues.

What makes babies sick as a general rule? Too many foods. If a healthy babe has a healthy breast milk in abundance, other things being equal, it will remain healthy. Vegetarians can not deny that one animal food is the normal food of man at his birth. I do not believe it is necessary to have different foods for different diseases as a rule, according to my experience. I wish doubters would try living on different foods singly and thus learn their action and more about disease than can be learned otherwise. The AMERICAN MEDICAL ASSOCIATION ought to institute such experiments in the many biologic laboratories of the continent.

ORIGINAL ARTICLES.

PROBLEMS IN FEEDING SCHOOL CHILDREN.

Presented to the Section on Physiology and Dietetics at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

BY HORACE P. MAKECHNIE, M.D.
SOMERVILLE, MASS.

When the plebeians had seceded from Rome, the story of the stomach and members was related as an inducement for them to return. Today we need to have the story retold and our attention called anew to the importance of the stomach as related to all the other organs. So far as our school children are concerned, our physicians are well aware of the facts, which therefore need not be demonstrated. Many years ago, while teaching, I noticed that quite a percentage of children who had been sent to school very young and had been kept there continually became very dull. They would not study nor learn as bright active children ought. I used to say they were school hardened.

Since I have practiced medicine I have been consulted by quite a number of school children who had dyspepsia which was due to a lack of nourishment. What! starvation around tables loaded with food? Yes, that is just it. We do not get our best dinners at Delmonico's, but at some lonely farm house after a day's hunting or fishing. The best dinner I ever ate was a simple vegetable hash after a day's hunting. No epicure ever concocted a dinner like that.

Fashion says that the first course should be soup. The first course should be a ray of sunshine, a breath of fresh air and a dash of exercise flavored with amusement. Most people think when they have supplied an abundance of food for their children, three times a day, that is all as to feeding. When we manage a furnace we know that even to put the coal on is not enough. We may smother the fire with the fuel, or it may be clogged with débris. The drafts and dampers have to be attended to. I grant that our school children have food enough and, in the main, good food, but are they nourished? It is not merely a question of brain cells, but of every cell in the body. Do we turn out from our schools robust men and women? What should we do but for the poor country schools to send us brains and muscle and push? The idea of a child sitting still six hours a day in order to learn a few uninteresting letters! Let us suppose a child gets up and eats breakfast, what course would you pursue so that he would eat a proper dinner? I mean eat in its broad sense, so that every cell would be fed. Would you send him to sit in a chair, hard and perhaps ill-fitting, for three hours? Would you have him attend to matters that would call the blood especially to the brain? Yet that is what we do with our children year after year. I wish to call attention especially to our high school children. The breakfast comes before they have fairly shaken off sleep and the dinner after a long fast. They may have a lunch. They are not in a mood to properly avail themselves of it. Would any good authority on feeding advocate such a method?

We can not afford to systematically starve our children even by an indirect way, even in a mild degree. Besides, we defeat our whole object. Who has not wondered at the number of men that have poured in from the country and taken the best positions away from our city boys? Who has not wondered at the small and decreasing size of American families, especially in cities? The demand for longer vacations shows that people are sensible of an evil although they have not formulated it. Chain a child to a chair by a teacher's authority for three hours and then expect him to eat. No, you have starved him as surely as though you had deprived him of food. The muscle has not thrown off the old and made ready for the new. Every organ, except perhaps the brain, has shared the same fate. Then, wherefore the eating? Wherefore the proper growth, the nervous energy? If we are not giving our boys and girls the best advantages for assimilating food, is it not worth while to do so? Shall we get stronger, better developed, more energetic, better educated children, better citizens? I believe we shall. Four hours a day for school is confinement enough. I remember when it was six. Five hours are better than six and four will do better than five. Let us have playgrounds, industrial schools, swimming schools, cooking schools. Let our rivers and ponds be open for boating. Let there be some grass a child can step on, and see to it that we do not rob the child by rendering him unable to take food. It would be a pity, indeed, if we made our glorious common schools the means of physical degeneration. It must not be forgotten that the period of school life is the period of growth. It is now or never with the child. After years can not atone. What a shout goes up when the bell strikes for dismissing the school. Imagine the pupil of some old Grecian being glad that they could not go to the grove today, or of Socrates reminding Plato that he must keep his hands and feet in better position. Why not send our children out; one group to learn the geography of a park or river, one to find a wild flower, a butterfly or a geologic specimen; let him unconsciously find an appetite, and with it more food for brain. Sumner Ellis, a thoughtful writer, says of the age: "We are spent and why should we not be dull?" "Overwork leads to underfeeding." "Why not slacken into a greater speed?" This is to the point. The child who goes to school with uneaten breakfast, should be sent home for a supply of fuel. This plea is made for those conscientious pupils who deserve well of the community, and who should not be enticed on by marks of no importance except to the over-sensitive. Says Montaigne, "The feast is in the palate." It belongs to us to emphasize this fact. Edward Everett was chosen as the orator at the dedication of the Gettysburg National Cemetery. He was the highest type, even the pinnacle of our classic education. No word would be admitted into his speech unless it could bear the test of good breeding. Every gesture even was fixed and irrevocable. Lincoln was to speak as the President of the United States. It is admitted that his friends were abashed at the prospect of the comparison. It is unnecessary for me to say anything more of the two men except that if asked who would be likely to deliver a classic oration, an oration that would be remembered and that would appear in the school books, I should have said Everett, and yet it was Lincoln. His words will be remembered as long as Gettysburg itself will be remembered. This shows that our ideas about what constitutes education may require modification. If this example is not enough, enough can be found. It surprises me that educators do not study the lives of forceful men, trace their lives back and see how they obtained their force, their education. Some philosopher has said that a man's education should be commenced a hundred years before he is born. It follows then that we should, in the education of a child, look forward a hundred years. We must have a care or nature will rebel and will give us no offspring to educate. Nature is patient and long-enduring, but she knows how to correct our errors by the decree that our race shall die out if we do not nourish our young.

SUBCUTANEOUS INJURIES OF SOFT PARTS.

BY JOHN EDDY LUCKEY, M.S., M.A., M.D.
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AWARDED THE J. W. FREER SECOND PRIZE, RUSH MEDICAL COLLEGE, 1897.

CONTUSIONS.

Contusions are surgical injuries—other than fractures or wounds proper—in which the skin is not broken. The producing force is usually blunt. Most wounds are more or less complicated by contusion. It may involve the skin alone, or any of the subcutaneous structures as muscles, nerves, viscus or bone. There is always present some degree of vascular rupture. A contusion may be defined as a hidden wound modified by the nature of its surrounding parts. Simple contusions are more apt to be found where there is a plentiful supply of fat or muscle interposed between the bony frame-work and the vulnerating force, upon the character of which the nature of the injury largely depends.

Symptomatology.—The pain which follows is not always proportionate to the injury. There is usually some degree of numbness, followed by marked aching or throbbing during the inflammatory stage, accompanied to a greater or less degree by loss of function. The inflammatory symptoms exhibit the usual features; however, owing to the protection of the wounds by the intact skin, sepsis is less liable to occur. Should the tissue be too much disorganized and the blood supply occluded, gangrene will follow. The writer recalls an injury of this nature which ultimately led to the loss of a boy's lower limb. In this case conservative measures were pursued, but the blood vessels were crushed and gangrene followed, compelling double amputation. As a rule shock is present in proportion to the extent of the injury. However, very slight contusions of the breasts or of the testes, cause marked shock. The same may be said of the large joints. The discoloration of the tissues is familiar to all, and is well described by the popular expression, "black and blue." It is due to the extravasation of blood or blood tinged serum. The color under the mucous membrane is brighter than that under the skin. The distance from the surface, and the amount of blood in the effusion are modifying factors. At times the discoloration does not appear on the surface for some time, even for several days, owing to the depth at which the extravasation takes place. In these cases it appears as yellowish spots mixed with green and blue. After a time the blood corpuscles gradually disintegrate and become absorbed; the purplish hue fades successively into violet, olive-brown, green and yellow. In the majority of cases the abnormal color disappears in from ten days to two weeks, though in some cases it may persist for several months.

While the injury to the vascular system usually results in nothing more than ecchymosis, there are cases in which hematomas are formed. This confined blood may remain fluid for months or years, eventually becoming disintegrated, dark in color, and often mixed with inflammatory products. Absorption, however, is the rule, though in rare instances the clotted blood may become organized. If air enters a hematoma, rapid decomposition and suppuration follow.

Treatment.—The indications are[1]: To limit the amount of extravasation; to subdue pain, shock and inflammation; in severe cases, to maintain vitality in the part; to promote absorption of effused blood, and to treat complications and sequelæ. Rest is important. Cold with gentle pressure and the limb in a position favorable to the return circulation will aid in limiting extravasation. Dry heat seems to be more effectual in superficial contusions. Heat and cold contract the caliber of the smaller vessels, and hence diminish congestion and extravasation. Moisture, with heat, softens and relaxes the tissues and so is contra-indicated. Although it gives temporary relief, it would by aiding effusion do harm. Heat or cold can be applied by rubber coil placed around the affected part and attached to some contrivance for regulating the temperature of the water if it be heated. To secure cold the tubing may be connected with the faucet of the water-works. Ice-bags and hot-water bags may be used. Subdue pain by opiates if necessary. Administer stimulants to overcome shock. Cold, blood-letting, leeches, saline cathartics and low diet aid in conquering inflammation. In cases where extreme disintegration of the tissues has taken place, cold is contra-indicated, as it tends to weaken parts already too much depressed. In such cases dry heat must be applied by the various methods that the conveniences at hand will suggest. The removal of the effused blood may be hastened by the application of heat or brief cold effusions, pressure and proper massage. Dr. Gross recommended the application (on a folded flannel) of a strong solution of hydrochlorate of ammonia to which has been added a little vinegar; the parts are then covered with oiled silk, and the application renewed six or eight times in twenty-four hours. Aneurysms, ruptured viscera, paralyses, neuralgias, hypertrophy, atrophy and other conditions may arise as complications or sequelæ, and must be treated accordingly.

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[1] Reference Hand-book of Medical Science.

SUBCUTANEOUS INJURIES OF MUSCLES.

Owing to their unprotected position, the muscles of the body are liable to injuries of varying severity. Contusions and sprains may result from external violence or from twisting and straining. The symptoms may be a mild form of myalgia, intensified by exertion and pressure with ecchymoses and swelling. In the more aggravated cases the pain may become intense, and the discoloration become marked. In cases complicated with rupture of the larger blood vessels hematoma may occur. When only the deeper muscles (as those of the thigh) are injured, it may take days before the infiltration of blood to the surface causes any discoloration. At times quite painful bruises of deep muscles may occur without any external signs. The injury of nerves in this connection intensifies the pain.

Shock may, and frequently does, complicate the injury. Loss of function, except in extreme cases, is temporary. Suppuration may follow.

Treatment.—Shock and pain should receive the same attention as in any other ailment. The very important remedy for the contusion itself is rest. This is secured by means of bandages and slings or splints, the choice depending upon the part affected. If rest can not be secured otherwise, put the patient in bed. Especially is rest demanded when the lumbo-dorsal region is the site of injury. Henry R. Wharton reports nine cases of contusions and sprains of the back, with special reference to early treatment of such injuries[2]. Rest in bed was insisted on in these cases. Pain and discomfort were greatly diminished by strapping the back of the patient firmly with resin or rubber adhesive plaster two and one-half inches wide, and long enough to extend half around the body. These were applied so as to cover the back, one strap slightly overlapping the other from a point just below the junction of the last lumbar vertebra with the sacrum to the lower ribs. At the end of two or three days these were removed, but reapplied in cases where pain and tenderness persisted. This treatment seemed to have obviated the necessity of fomentations and stimulating lotions. Hemorrhage and serious effusion may be relieved by equable, elastic and firm compression. A simple flannel bandage cut on the bias is frequently sufficient for this purpose. Great comfort often follows the use of cold applications as ice-bags, or effusions of water, or evaporating lotions. The latter are most efficient in superficial contusions. Alcohol is the essential element in the tinctures so popular among the laity, arnica, witch-hazel, etc., and may be used with marked benefit. Cold applications are contra-indicated in cases where severe disorganization of the tissues has taken place. In such cases hot-water bags, warm flannels and other devices, may be resorted to for the purpose of supporting and stimulating the remaining vitality of the part. Later massage, with stimulating liniments, promotes the circulation, hastens absorption, promotes nutrition and re-establishes the normal function of the contused parts. In case of suppuration the part should be thoroughly incised and proper antiseptic treatment applied.

Rupture of muscle is not a common traumatism. Probably some of the cases reported as such are ruptures of the tendon, aponeurosis or sheath. This lesion may be caused by a tremendous blow, by being run over by a vehicle, or by violent muscular efforts, as in running, jumping or trying to catch one's self when slipping. (Dr. Baldwin once ruptured his right plantaris while dancing.) Spontaneous rupture may follow even a slight voluntary movement when typhoid fever or other acute, grave pyrexia has caused a degeneration of the muscle fibers, rendering them peculiarly brittle. Rheumatoid arthritis ought to be mentioned in this connection. Sudden and violent muscular effort, followed by a period of prolonged inactivity is regarded as predisposing to the event. "The excessive action which takes place in convulsive disorders —as hysteria, epilepsy and tetanus—will occasionally cause solution of continuity in muscular tissue." The muscles of the abdomen, of the thigh and leg, of the back and of the arm may be affected, the frequency corresponding with the order in which they are named. Strong men are more liable to muscle rupture than are women. Parturition may rupture the abdominal muscles. Occupation may be a predisposing factor in rupture of certain muscles, for example, porters and hod-carriers are more liable to rupture of the cervico-dorsal muscles; cavalrymen, of the abdominal and thigh muscles.

Symptomatology.—The symptoms vary with the extent and location of the lesion. There is always pain, except in the spontaneous cases following disease. The pain is sudden, sharp, and stinging or cutting, like the lash of a whip—*coup de fouet;* it is a crackling sensation, and a snap, as of something breaking, may often be heard. Syncope follows in some cases. There is loss of motion. Swelling and ecchymoses are present. Separation of the disrupted ends causes a depression. Tearing of nerve fibers explains the sharp pain. These symptoms will usually afford a ready diagnosis; however, great care must be taken in deep-seated cases, in which diagnosis must be made by exclusion. Professor Pean cites a case where rupture of the anterior portion of the deltoid bore a resemblance to luxation of the shoulder joint. Dr. Mansell Moullin thinks rupture of a deep-seated, perhaps degenerated vein, constitutes the lesion of *coup de fouet*, and not separation of muscular or tendinous fibers. He refers to a case in which this lesion occurred twice in the same leg, at different spots, during the same month. In both instances, under proper treatment, there was rapid recovery, which to him indicated lesion of a blood vessel. It is doubtful whether rupture of a vein alone would cause such sudden, excessive pain and loss of function. Such a lesion of a vein would cause greater hematoma and swelling, and more marked ecchymosis. Sédillot analyzed twenty-one cases and found all affected at the line of insertion between muscle and tendon, while there were also eight lesions in the body of the muscle. Nélaton found the situation of the lesion dependent upon the form and structure of the muscle. Those with long fibers and short tendons ruptured from injury to the fleshy parts. Those with short fibers and long tendons ruptured at the junction of tendon and muscle. In the latter, the rupture is more apt to be complete. Hematoma is almost constant. The extravasation is usually absorbed and repair takes place. Suppuration is rare in the previously healthy. Complications are usually not severe. Thrombosis may take place. Contracture and shortening may follow.

Treatment.—Relaxation and *rest*, with ruptured parts in approximation and under gentle pressure. When the muscle is perfectly healthy, the parts may be sutured. It will take from four to eight weeks to accomplish good results, and even then feebleness may linger. Varicosity may be avoided by use of the roller bandage. Contracture and shortening may be compensated by Anderson's method of lengthening tendon.

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[2] Med. and Surg. Reporter, Vol. lxx.

Hernia of muscle may take place, in consequence of the imperfect healing of a wound. It may be due to rupture of the muscle sheath following some severe exertion or unaccustomed movement. This condition may be recognized by the tumor, which is soft during relaxation of the muscle, and hard during its contraction. This tumor may persist for an indefinite period. "In recent cases, rest and methodical pressure will generally effect a cure. When the hernia has long existed, the edges of the opening should be freshened and united by stitches." Inconvenience may be so slight as not to justify any surgical interference.

SUBCUTANEOUS INJURY OF TENDONS.

Rupture of tendons may be the result of sudden exertion. It may be complete or partial, usually the former. Exertion that is not exaggerated may cause rupture in tendons of defective strncture, as in Dr. Becker's case cited below.

Symptomatology.—Rupture of a tendon frequently causes a snapping sound. There is a sensation of something giving away. Pain is not so pronounced as in similar lesions of muscles. Loss of motion follows the lesion. There is a gap at the seat of injury, which is increased on contraction of its muscle. This depression may be felt and frequently seen. A rupture of the tendon of the quadriceps extensor causes severe swelling of the knee joint, due to effusion into the joint.

Dr. Becker[3] reports a case of subcutaneous rupture of the tendon of the quadriceps extensor, in a laborer who caught himself in slipping while carrying a load on his back. On making the incision for the sntures, fully one-half pint of blood escaped. In this tendon three cartilages had grown, from one-fourth to one-half inch in diameter. As they weakened the tendon, these were excised. The leg was antiseptically treated, and a good recovery made, though the shortening of the tendon caused the leg to remain bent at an angle of 90 degrees.

Treatment.—Approximation of the separated ends, by holding the parts in position by splints, bandages or other mechanical devices, until reunion takes place, which will usually occur in five to ten weeks. The better method is by suture, especially when it is difficult to control the contraction of the muscle. Operation is especially indicated in the leg, except in extreme age or other clear contra-indications. Aseptic surgery advises operation, even in old cases of rupture, where extensive dissection is required to find the widely separated and buried ends.

Displacement of tendons occurs sometimes, in injuries consequent upon sudden muscular action or great violence. The peroneal tendons are the most frequently affected. After pressing the tendon back into position, the parts should be immobilized and retention dressing worn until repair of the torn sheath or lateral ligaments takes place, if this can be secured. It may be necessary to resort to sutures. Dr. White has reported a case of dislocation of the tendon of the long head of the biceps, flexor cubiti.

SUBCUTANEOUS INJURIES OF ARTERIES.

The arteries may suffer from contusions and strains. The walls of the artery may be ruptured so as to admit hemorrhage into the sheath, and this blood may produce such pressnre as to cause partial or total occlusion of the vessel. Rupture, to a greater or less extent, of the internal and middle coats, is the most common result of contusing and stretching. The retraction of these coats, the outer coat remaining intact, produces obstruction. In cases where the vessel is so surrounded as to confine the extravasated blood in a cavity, hematoma may follow. The healthy artery recurves in a valvular fashion, while the diseased artery breaks up irregnlarly. Aneurysms, in the young and otherwise perfectly healthy subject,[4] sometimes follow severe strains. Fractures of the bones are a fruitful source of injury to the blood vessels. In some cases damage to the vessel walls may be so serious as to preclude return of function. In other cases of simple organic injury, obstruction may be but temporary. Where the artery remains intact, pulsation soon returns, though pressure overcomes it for a time. The following case illustrates the condition mentioned above, in which the internal and middle coats are ruptured:

A youth of 18 years entered Middlesex Hospital Sept. 13, 1894, complaining of injury to the upper part of his right thigh. Shortly before his admission he had been crushed between the sliding table of a press and the wall. He had walked without aid to the hospital.

Slight bruises were discovered on the anterior aspect of the upper part of the thigh, about an inch below the fold of the groin. No swelling; slight pain and tenderness; no discoloration beyond seat of bruises. The entire right limb was colder than the left. No pulsation in the common or superficial femoral arteries or in the posterior tibial and dorsalis pedis arteries. Pain ceased in two days. Signs of bruises slowly vanished. Could move limb freely two days after accident. Thirteen days after accident a slight pulsation in the dorsalis pedis artery was noted, but none in the posterior tibial or femoral. Three days later there was a distinct pulse in the dorsalis pedis. October 3, pulsation in posterior tibial. The femoral artery remained unchanged. Patient left the hospital October 4.[5]

Since there was no swelling in the above case, there could not have been rupture of the external coat of the femoral artery. The loss of pulsation in the common femoral, posterior tibial and dorsalis pedis arteries of the right limb, with coldness of the entire limb, justified the diagnosis which was made, "rupture of the inner and middle coats of the right common femoral artery." Collateral circulation, in this case, probably took place through the external circumflex and terminal branches of the profunda artery.

Symptomatology.—When but partially occluded, there will be slight pulsation on the distal side of the lesion; total occlusion would cause entire loss of pulsation. The parts will be more or less swollen, depending upon the amount of general contusion present. In cases where the great artery snpplying a limb is occluded—as the brachial or the common femoral, as noted in the case above—the limb will be cold. There may be numbness. Pain will vary with the extent of nerve injury.

Treatment.—Wrap the part in cotton; secure rest for the part—splints may be adjusted to the limbs. Treat shock, if present, as in all cases—warmth, stimulation and by staying hemorrhage. Constitutional treatment may be demanded, depending on the general condition of the patient. Treat contusions as outlined above.

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[3] The Charlotte Medical Journal, July, 1895.

[4] Andrew Clark: British Medical Journal, Nov. 28, 1896.

[5] The Lancet, 1894, pp. 1277-1279.

SUBCUTANEOUS INJURY OF NERVES.

The nerves, like all the more vital organs of the body, are anatomically well protected. Those of the upper extremities are the more exposed, and for this reason, injuries are more common to nerves of these parts.

Contusions and *compression* are the most common of the injuries, though at times dislocations of the nerves are also met with. Direct blows may affect the nerves, causing severe pain and, at times, shock. Every one is well acquainted with the sensations due to striking the "crazy bone." These are due to concussion of the ulnar nerve as it crosses the bend of the elbow. The sporting fraternity are well aware of the effectiveness of a blow at the base of the neck causing contusion of the brachial plexus. Dislocation or fracture of various bones may give rise to serious contusion of the neighboring nerves, laceration being especially liable to follow fracture. In one of the clinics of the past year Professor Senn (Rush Medical College) presented a boy with fracture of the bones of the forearm, with faulty union and involvement of the nerves, causing loss of sensation in the hand and forearm. Fracture of the humerus frequently causes laceration of the musculo-spiral nerve, and the brachial plexus may be implicated in fracture of the clavicle, while the sciatic nerve may suffer from fracture through the sciatic notch. Compression of a nerve may cause partial or complete loss of its function. This compression may be continuous or repeated at very short intervals. It may be due to excessive growth of callus in repair of fracture; to tumors, especially thoracic aneurysms; to lying in cramped positions, as with the arms under the head; to exostoses; to contraction of scar tissue; to the use of crutches; to the use of forceps during labor; to prolonged compression of the pelvic nerves during protracted labor. Various mechanical injuries may tear or compress the nerves, causing hemorrhage into the nerve structure and affecting the myelin. Very severe subcutaneous injuries may even cause destruction of the nerve.

Symptomatology.—In contusion, there is a tingling sensation, as of pins sticking. In severe cases, loss of function may follow immediately. Occcasionally a severe neuritis may develop, with pain in the distribution of the nerve. Palsy may be present, and trophic alterations may be among later symptoms.

Treatment.—Remove the cause when it is possible. Absolute rest is essential and morphin may be used to allay the pain. Arsenic is sometimes useful and galvanism may be beneficial.

Dislocation of nerves is rare. A blow may cause dislocation of the ulnar from its groove behind the epicondyle. Poncet[6] records an instance in which the dislocation was due to muscular effort exerted in throwing a snowball. Cases have been observed with no history of traumatism.[7] Holden[8] reports dislocation of both ulnar nerves while the patient was holding the steering wheel of a vessel during a storm. The patient felt something slip in both elbows, and a tingling pain in the distribution of both ulnar nerves. The nerves returned to their normal position on exerting slight pressure on the inner side of the elbows.

Treatment would be the same as in displacement of the tendons. Complications must be treated according to their nature.

INJURIES OF THE CHEST AND ITS VISCERA.

Contusions of the chest are very common but, owing to the extreme elasticity of the chest walls, they are seldom serious. Mild contusions give rise simply to bruises and ecchymosis. Abscess seldom follows such injuries. Fracture of the ribs is a frequent result.

Symptomatology.—The symptoms are pain, soreness, limited motion in breathing and abdominal respiration in injuries of considerable extent.

Treatment.—As in all contusions, the securing of *rest* is essential. This may be accomplished by compressing the chest wall so as to limit motion. The application of adhesive strips as directed under contusions and strains of muscles, would serve excellently in these cases. Other appropriate treatment for contusions and sprains should be adapted to the demands of individual cases.

Contusions involving the thoracic viscera may be of the most complicated and serious character. Rupture of the lungs, the heart, the pericardium, and of the blood vessels, may occur without external evidence of injury. "Commotio thoracica" is analogous to contusion of the brain—no postmortem evidence of mortal lesion ever having been discovered. Bruises of the lungs may result in varying degrees of injury. There may be simply rupture of the capillaries not involving the pulmonary tissue itself; there may be small ruptures of the lung tissue extending into the alveoli and bronchioles and including the surrounding vessels, which form depots of blood here and there in the neighboring tissues. In these cases recovery usually follows, provided there is no inflammation; but where the rupture becomes extensive, including the bronchi and larger vessels, death in many cases results very soon. Hemothorax, pneumothorax and emphysema are present after ruptures of the lung, in degrees varying with the amount of damage done. In making a diagnosis the signs and symptoms of these conditions must be kept in mind. Complications are apt to arise in the shape of bronchitis or broncho-pneumonia, traumatic pneumonia, pleurisy or gangrene. More or less impairment invariably accompanies recovery.

Treatment must be directed toward the relief of the conditions as exhibited in the individual cases.

Pneumocele, or hernia of the lung, is very rarely met with. In the civil war seven cases of pneumocele were recorded, and of these six were primary. While a few cases of the lungs escaping at the root of the neck, simulating in position and outline aneurysm of the great vessels, are reported, the greater number are found in the lower portion of the chest. When in the neck they may transmit such impulse and murmurs as to seriously embarrass diagnosis.[9] Pneumocele is usually the result of some penetrating wound, as a stab or gunshot wound; however, the unique case reported by E. Clifford Beale in the *Lancet*, Jan. 28, 1882, justifies mention of the subject under subcutaneous injuries. This was the case of a young carter, who was admitted to the hospital in a state of extreme shock, Aug. 11, 1881, having been seriously injured by his own cart, from which he had fallen. The patient subsequently dying, part of the lower lobe of the right lung was found to have been forced into the abdominal cavity. The presence of the liver on the same side would oppose such protrusion except in case of unnatural conditions, such as a congenital fissure of the diaphragm. The writer has been unable to discover any directions for treatment, except in *penetrating* wounds resulting in protrusion of the lung. In such cases the parts should be cleansed and restored to normal position, or if it is adherent, ligature or excision is recommended.[10] In cases of subcutaneous lung hernia where the diagnosis is clear and the symptoms aggravated, the surgeon might be justified in cutting down to the parts, reducing the hernia or excising it as the conditions seemed to require.

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[6] Semaine Médicale le Semestre, 1888, p. 59.

[7] MacCormic: Lancet, 1891, I, p. 1040; Lutz: St. Louis Medical and Surgical Journal, 1879-80, Vol. XXXVIII, p. 550.

[8] British Medical Journal, 1893, Vol. I, p. 288.

[9] Ref. Handbook Med. Sciences.

Rupture of the diaphragm, in a patient whose condition is favorable, may be repaired by abdominal incision and restorative procedure. The operation requires skill and rapidity, and is of so difficult a nature as to demand the most careful attention of the best operators.

The heart may suffer from contusion, just as the other viscera. Carditis, endocarditis and pericarditis may be caused by contusion. These affections will be recognized by their characteristic signs and symptoms.

Treatment of these cases must include both constitutional and local measures. Absolute rest in the recumbent position is imperative. Opium may be used to allay pain, and for its sedative effect on the circulation. Collapse calls for artificial warmth and, to a certain extent, is a favorable condition, since it tends to check hemorrhage and inflammation. Violent reaction, following in some cases, necessitates the administration of cardiac sedatives. When inflammation of the myocardium, pericardium or endocardium results, the treatment is the same as for like affections from idiopathic causes.

Rupture of the heart.—The belief is firmly established in the popular mind that the heart is the most vital structure of the whole organism, and that the least interference with its function by external forces means immediate death. Records of wounds of the heart are not numerous, but out of twenty-nine collected cases of injury to this organ, only two were fatal within forty-eight hours.[11] This contradicts the popular view on the subject. The heart has suffered severe injury and such recovery been made as to enable the patient to live for years afterward.[12] Since this is true of incised wounds, it is true also of ruptures. In this connection the case below, reported by Prof. L. Hektoen,[13] is of rare interest:

> The patient was a young baggage master with good family history, good habits and extraordinarily good health previous to February, 1891. At that time, while carrying a heavy trunk, on a rapidly moving train, he was thrown on his back by the train striking a curve. As he fell he exerted his entire strength to save himself. He felt a stabbing pain near the heart and heard a snapping sound. Three or four days later, a rumbling sound from the heart, occurring synchronously with its beats, became sufficiently distinct to be heard across a room of ordinary size. Peripheral pulsation was well marked. Later the sound disappeared, but there was shortness of breath, pain in the chest and palpitation of the heart, increasing to the time of his death, with additional symptoms of ascites and anasarca two weeks before death, which occurred somewhat suddenly in March, 1892. Physical examination Jan. 31, 1892, gave labored inspiration, quick pulse, diffuse and lifting pulse in epigastrium and sixth or seventh space in left anterior axillary line, also in neck and crural regions. Area of cardiac dulness was increased. Rough diastolic murmur over base of heart, and diffuse systolic murmur at apex. A distinct murmur was heard over carotid, subclavian, brachial and femoral vessels.
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> *Diagnosis.*—History, symptoms and physical findings gave diagnosis of rupture of healthy valve, probably one of the aortic, causing an insufficiency which became permanent and led to hypertrophy and dilatation of left ventricle.

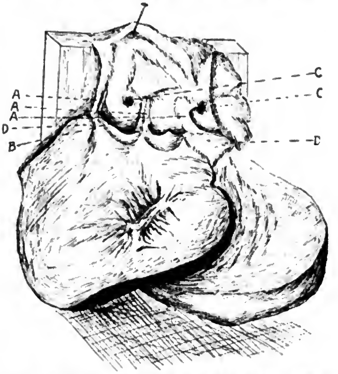

Fig. 1.—Heart with extensive ruptures at aortic orifice. (From Dr. Hektoen's article, by permission.) A, ridges of cicatricial tissue; B, cicatrix, from tearing of right posterior segment along attached margin; C, orifices of coronary vessels; D, anterior segment, cut across.

> *Postmortem.*—Heart, weight 20 ozs.; apex formed by both ventricles, coronary veins on both surfaces distended; both sides of heart filled with fluid blood; left ventricle increased in depth and in thickness of its walls, right ventricle increased in depth, but diminished in thickness of its wall; papillary muscles compressed; semilunar valves incompetent to water test; orifices of aortic, mitral and tricuspid valves increased in size; valve leaflets uniformly thickened but showing no degeneration in structure; orifices of coronary arteries 1 cm. above free margins of aortic valves, instead of immediately behind; the left third of the convex attached margin of the right posterior segment of the aortic valve was torn loose from the vessel wall, its site of attachment showing a dense linear cicatrix, while the segment itself hung free (Fig. 1). Three ridges, as of cicatricial tissue, were upon the wall of the aorta, at points of usual joint attachment of valves to aortic wall. These ridges varied in length from one half in. (1.5 cm.) to one third in. (1 cm.), and showed characteristics of recent scar tissue. The valves were reattached lower down. Two small aneurysmal dilatations of the right auricular appendix showed walls composed only of epicardium and endocardium (Fig. 2).

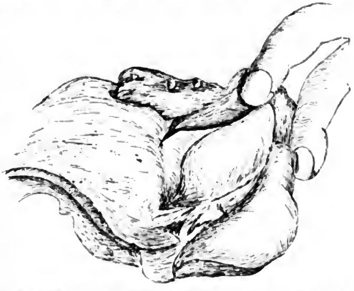

Fig. 2.—Saccular aneurysmal dilatations in upper margin of right auricular appendix. (From Dr. Hektoen's article, by permission.)

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[10] Am. Text-book of Surgery.
[11] Turner: British Medical Journal, Nov. 14, 1896.
[12] Muhlig: Medical Times and Gazette, Aug. 3, 1861.
[13] The North American Practitioner, April, 1892.

Conclusions:—The principal lesion was at the aortic orifice, insufficiency here causing, secondarily, hypertrophy of the whole heart. This insufficiency at once occurred, when the right posterior segment of the aortic valve was torn, and continued, in consequence of the failure of this leaflet to reunite.

The muscular strain attendant upon the accident caused also the tearing loose of the three points of joint valvular attachments, leaving scar tissue on the wall, while the valves united again at a lower site (Fig. 1). This lower attachment accounts for the peculiar situation of the coronary arteries. The aneurysms of the right auricular appendix would result from the increased intra-auricular pressure.

(*To be continued.*)

"DEFICIENT EXCRETION FROM KIDNEYS NOT ORGANICALLY DISEASED AND SOME OF THE DISEASES PECULIAR TO WOMEN," AND DISEASES OF THE SKIN.

Read before the Medical Society of the Sate of New York, January 7, 1897.

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One year ago Dr. James H. Etheridge of Chicago, by invitation, made an address before this Society, the title of which was the first portion of that above given.[1] As there was no discussion except some remarks by the present writer it seemed best to present the matter again, with the author's full consent, in hopes that the important subject might receive further consideration from the members present, and that it might thus become doubly impressed on those likely to meet the cases referred to.

While the present writer disclaims all special knowledge in regard to diseases peculiar to women, he feels particularly interested in the subject which Dr. Etheridge so ably presented, for several reasons. Incidentally he has met many female patients coming under treatment for various diseases of the skin, who were known to have also various uterine disorders of distressing character. Many of these patients had previously undergone prolonged and varied gynecologic treatment, often with unsatisfactory results. These uterine disorders he has seen improved and often quite recovered from, under lines of treatment directed for their skin difficulty, which quite coincided with those laid down by Dr. Etheridge, and without gynecologic treatment. He therefore begs to present the subject again, as briefly and clearly as possible, urging the profession to recognize the principles and employ the methods laid down by the distinguished author of the paper alluded to.

Dr. Etheridge has kindly given permission to use in the freest manner possible the material presented by him, which will be done as far as necessary to make the matter clear and forceful.

"Toxic materials always reside within the human body. They constitute the waste products of living beings. From birth to death they battle for supremacy. So long as they are plentifully excreted, death is postponed. The skin, the pulmonary mucous membrane, the bowel and the kidney constitute the avenues of escape for all toxic materials from our bodies. If one of these emunctories be crippled the initiation of death is manifest. . . . The physician who busies himself with solving the problem of the initial departure from the proper performance of excretion enters a new field of labor. It is the most interesting one he can invade today. . . Herein he deals with the beginning of disease." Such are the strong words with which Dr. Etheridge introduces his interesting and important study.

Prominent among the systemic derangements which tend to the impurification of the blood current, and the retention in the system of the waste products of animal life, undoubtedly stand imperfect kidney excretion; the elements composing the urine are known to be poisonous both to the idvidual forming them, and also to animals, when artificially introduced. Extirpation of both kidneys is very quickly followed by death; the gradual retention of these normally excreted poisons, by means of imperfect elimination from the kidneys, leads, as many have shown, to various forms of disorder and disease in many organs of the body.

Dr. Etheridge has rendered an inestimable service to the profession, and to suffering females, in earnestly calling attention to the fact, which I can confirm most positively, that this insufficient kidney secretion plays a very important part in the production and continuance of many of the diseases peculiar to women. The study of the initiative cause of these diseases merits the most serious consideration of the profession.

How far the errors observed in the excretion from the kidneys pertains to the action of those organs alone, does not belong to our present discussion; nor how far the remedies used have for their action solely their influence on the kidneys. Undoubtedly the liver plays a very important share, as also the digestive organs, in rendering the ultimate process of removal of effete products imperfect. Suffice for the present that we discover in the kidney excretion the evidences of the imperfect removal of the waste and poisonous substances, and by means of the improved excretion from the kidneys we find the proof of their proper removal and consequent good health.

Recognizing that the proportion of the solids in the normal urine bears a certain ratio to a normal body weight, below a certain percentage of which they can not fall without indicating "renal insufficiency," Dr. Etheridge has given a table, prepared by an expert physiologist, which is here reproduced:

TABLE 1. Relation of body weight of healthy human beings to total daily excretion of urinary solids:

Weight.	Total urinary solids.
40 pounds	392 grains.
50 "	479 "
60 "	563 "
70 "	639 "
80 "	716 "
90 "	789 "
100 "	854 "
110 "	916 "
120 "	974 "
130 "	1028 "
140 "	1078 "
150 "	1150 "
160 "	1198 "
170 "	1237 "
180 "	1260 "
190 "	1300 "
200 "	1330 "

As this table was constructed for healthy human beings, and takes into account exercise, Dr. Etheridge does not think that practically quite these amounts can be expected in women who come for treatment. It is to be remembered also that women always excrete less than men, pehaps one-tenth less. He would, therefore, from experience fix the limit at 500 grains for a woman weighing 90 pounds, and 1,100 grains for one weighing 180 pounds; from which data a scale can easily be constructed, as follows, for practical daily work:

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[1] Transactions of the Medical Society of the State of New York, 1896.

Table 2.—Relation of body weight of women of average health to total daily excretion of urinary solids:

Weight.	Total urinary solids.
90 pounds	500 grains.
95 "	535 "
100 "	570 "
105 "	605 "
110 "	640 "
115 "	675 "
120 "	710 "
125 "	745 "
130 "	780 "
135 "	815 "
140 "	850 "
145 "	885 "
150 "	920 "
155 "	955 "
160 "	990 "
165 "	1025 "
170 "	1060 "
180 "	1100 "

This table is at the rate of about thirty-five grains additional for each five pounds of body weight, or seven grains to the pound, which is near enough for ordinary daily work. For greater accuracy there should be still some deduction for age; thus, between 40 and 50 years, deduct 10 per cent., between 50 and 60 deduct 20 per cent., and between 60 and 70 deduct 30 per cent. from the amounts above given.

It is not a very difficult matter to carry out the plan of learning the total daily excretion of solids, if it be rightly arranged; it is especially easy in regard to women, as they are more apt to be at home and willing to attend to such matters. I have long had it done, daily in many instances, and in others at stated intervals. An ordinary two-quart mineral-water bottle is used, with a strip of paper pasted on the side for the scale. This is graduated by filling the bottle from a two-ounce measure and marking off each two ounces; the intervening ounce can be divided by the eye. Many druggists keep large bottles graduated for this purpose. A glass funnel is placed in the mouth of the bottle, by means of which all the urine can be poured into it as passed. The index is read off, the amount recorded and the bottle emptied at a fixed hour every day and a sample of the whole is sent to the office, with the statement of the total amount passed. From the specific gravity of the sample the total amount of solids passed in the day is easily estimated by Haines' modification of Haeser's method, as given by Dr. Etheridge; which is as follows: *Multiply the last two figures of the specific gravity of the urine by the number of ounces voided in twenty-four hours and add 10 per cent. to the product.* Thus, if the amount passed in twenty-four hours was 36 ounces and the specific gravity 1021, it would be 36 × 21 = 756 + 10 per cent. = 831, the number of grains of solids in the whole amount. Compared with the table it can be readily estimated if this is above or below the normal amount of the body weight of the patient.

It will be noticed that this estimate is for the total solids of the urine and not for the urea alone; the tests for the latter are slow and laborious and while often extremely valuable are really not necessary here; for, under normal conditions the urea represents nearly one-half of the solid constituents of the urine, and so would be expected to vary with the total solids. It is to be remembered that our study is in regard to kidneys not organically diseased, and at present no reference is made to albumin in the urine or to sugar.

But, further, the toxicity of the urine does not depend upon the urea alone. Etheridge states that "the coloring matter and other organic substances removed by charcoal filtration contribute at least one-half of the toxic power of the urine," and he attributes a considerable portion to the urinary salts of potassa.

It will be noticed, however, that very little has been said in regard to the actual quantity of the urine passed, representing the amount of water in it or the solubility of its constituents, a point hardly alluded to by the writer of the previous paper. The urinary water may vary so greatly from day to day, according to the amount of fluid drank and the activity of the secretion of the skin and respiratory organs, that it is in some ways of less importance than the actual solids of the urine, which represent the removal of the waste products of metabolism from the body. But, on the other hand, it is often immensely important and should always be known and appreciated. For even if the total amount of solids voided may be up to normal, there is still insufficiency of kidney action and consequent ill health if the proportion of water be not also about normal. A smaller amount of water, with higher specific gravity, and consequently containing a normal daily amount of urinary solids, does not conduce to the good health which a normal amount of urine with a lower gravity would indicate. Clinically this matter is often of the very greatest importance, and I could illustrate it by dozens of cases, did time and space permit.

Dr. Etheridge gives some very interesting cases illustrating the ill effects of renal inadequacy and their relief upon the employment of appropriate diuretic treatment, which I will very briefly quote before adding my own clinical statements and comments.

Case 1.—Mrs. C., multipara, had general metritis with deep double laceration of the cervix, with an obstinate bronchitis and profuse secretion; the severity of the cough increased the pelvic suffering and vesical irritability, also the profuse leucorrhea. Each winter she had been an invalid, submitting to very much gynecologic treatment, and had sought relief in warmer climates, where she was better, as also in summer; but with advent of cold weather the bronchitis returned, aggravating all her other troubles. Finally it was found that she was passing only 298 grains of urinary solids, when 850 grains was her normal amount. Under stimulating diuretics, tonics and a laxative, the urinary solids were increased, in thirty days, to 950 grains, the cough had disappeared, though in midwinter, and she was shortly in better condition than for many years.

Case 2.—Miss G., aged 23, had menstruated only five times in the previous year; she had backaches and headaches, circumpelvic pains, increased by exercise, an albuminous leucorrhea and great nervousness. The ascending colon was loaded with feces. She should have voided 850 grains of urinary solids daily, but was passing only 485. Under treatment of laxatives and diuretics the urinary solids were increased to over 1300 grains for a number of days, and regular menstruation returned. When, from neglect, there was again insufficiency of the solids in the urine, the amenorrhea returned, and a recurrence to diuretics again made her monthly sickness appear regularly.

Case 3.—Mrs. B., aged 36, the mother of three children and the victim of many abortions, complained of pelvic weight, general rachialgia, tender spine, pleurodynia in left chest, excessive nervousness and moderate metrorrhagia; she had a moderate metritis. She weighed 154 pounds and should have passed 900 grains of urinary solids daily, but was voiding only 480 grains. Her urinary solids were kept above 1000 grains daily for many weeks, and with local treatment and tonics she was cured in four months.

My own experience in regard to the value of diuretic treatment in many disorders peculiar to women dates back a good many years, and has come to me slowly though very convincingly. But I have always hesitated about reporting on the subject, because of my want of acquaintance with the actual condition of the pelvic organs, except from a report made by those who had previously seen the case or cases, aided by statements of the patient. But as I have gone on year after year, seeing and knowing of the vast improvement which occurred in my patients in regard to symptoms pointing to the pelvic organs of which they had complained, I have become more and more confident as to prospective results, when patients complained of uterine or other pelvic derangements.

When, therefore, Dr. Etheridge spoke with such positiveness, I was pleased indeed to find my own experience verified by so distinguished an authority, and I felt justified in adding my testimony to the same facts, observed from quite a different portion of the medical field; for it need hardly be added that my cases came to me for various diseases of the skin, and not for uterine or female troubles.

The first case, which impressed me perhaps most forcibly of all, occurred at least fifteen years ago; the name of the patient has gone from me so that I can not look up the notes of the case, but the details are yet very vivid to my mind, for many reasons.

My patient was a girl of about 23, with one of the worst cases of indurated acne that I had seen, the cheeks and chin being dreadfully disfigured. She gave the history of very great uterine trouble, for which she had received an infinity of treatment for a number of years. She had profuse menorrhagia with very great pain. Her condition had become so bad that an elevator had been put in her house for her use, as she never could go up stairs. She drove to my office and, as it was on the second floor of a basement house, I saw her the first few times in the reception room on the ground floor.

For her acne I gave her first alkaline diuretics and laxatives, tonics, etc., with a regulated diet, and she responded well to treatment. I remember well my surprise when one day she walked up stairs to my office. I shortly persuaded her to take a little exercise, walking a block and gradually more, and, to be brief, by the time the treatment for the acne was completed she walked a mile to my house and had abandoned her elevator at home. She had had no gynecologic treatment in the meantime, and I do not think that I knew what condition existed in the pelvic organs. Simply in treating the condition I found on the face the general results followed, and this treatment was very decidedly in the line of a relief to insufficient kidney and bowel action.

It is hardly necessary to occupy time in relating individual cases, and indeed it is difficult to make selections from the notes of several dozen cases now before me, there are so many which exhibit gains in the directions mentioned to a striking degree. It is really now of daily occurrence for me to see those who have suffered from many of the diseased conditions peculiar to women, become freed from them under treatment directed largely along the lines advocated by Dr. Etheridge, and given mainly on account of skin diseases for which they sought relief. And I may say that almost without exception such cases have exhibited insufficient kidney action, many of them, of course, being also complicated with constipation and primary or secondary indigestion.

In this way I have seen many patients with amenorrhea in varying degrees, in whom the menses have been thus established in a regular manner; but as in Dr. Etheridge's case, their trouble will often return when the treatment has been neglected for some time, and from one cause or another the insufficient action of the kidneys returns. We all know of many instances where the menstrual flow has been suddenly checked by chilling of the feet, and it is just the same accident which so often deranges kidney action. Irregularities of the menses, as to the interval and their duration, have also constantly been observed by me to disappear as the eliminative treatment necessary for the skin disease has gotten under full action. Excessive flowing has also been met with from time to time, which has been regulated by the same line of treatment.

But it is in dysmenorrhea that the largest number of most interesting cases are found, and of these I could give many very striking examples. It is not at all uncommon for me to learn from a patient that since she had been under treatment the monthly flow had become more regular and natural than for years previously. Many who have suffered so severely that even opiates were required with each monthly sickness, in order to make life endurable, have, when under full treatment, absolutely lost all pain and become even unconscious as to when the menstrual epoch begins. And it has occasionally happened that a mother has brought a second daughter to me, not at all for the treatment of any skin disease, but solely for the relief of menstrual difficulties, because another daughter had found such benefit while under treatment for the skin.

My experience in a very considerable number of cases has also led me to the belief that many of the ills and discomforts complained of at the period of the menopause, and usually more or less accredited to this condition, as though dependent upon it, are in reality due to faulty elimination, principally by the kidneys. I could cite many many instances where attention to this element has resulted in the disappearance of the unpleasant symptoms in very brief time, while a neglect of the same would be followed by their recurrence, only to again disappear under exactly proper treatment.

I am quite aware that some of the statements I have made may seem exaggerated, and I may seem unwarranted in speaking thus positively in regard to matters outside of my chosen specialty. I can only assure you that I am speaking of what I have observed and know; for surely even the gynecologist can not know of the sufferings of patients except from their own statements; and I can verify the facts by many physicians who have seen cases with me. I may also say that in the local societies and to friends I have mentioned these ideas, and others have seen like good results in patients where this plan of treatment has been put in thorough practice.

It will be understood that in the cases referred to there has been no local or gynecologic treatment employed at the time, as I never in any way attempt such; nor have I generally known what, if any, local disorder or displacement existed, as I never make examinations in such cases, but send patients to gynecologists when special treatment is required.

I do not, however, wish to be misunderstood in regard to the matters of which I have spoken. I by no means claim that care in regard to deficient urinary secretion will cure all the ills which woman is heir to. I most fully appreciate the need of the gynecologist, and recognize in the highest degree the splendid work which has been accomplished by them in the relief of suffering women. But from experience I know that many cases of uterine disorders can be relieved and indeed cured by full and adequate general medical treatment, including attention to and rectification of a faulty urinary secretion, which had too often been previously neglected. I can not do better than to close with a quotation of the final part of Dr. Etheridge's excellent paper.

"No intimation is here given that this is the most important factor in diseases of women. To set up such a claim would be most absurd. The aim of this article is solely to call attention to one line of treatment that has been all but universally neglected heretofore, and to invite observation and original investigations.

"There is the gravest reason for thinking that a very close relation, even that of cause and effect, exists between renal insufficiency and pelvic disorders. The developmental phase of the renal and generative organs constitutes that reason. Embryologically these two sets of important organs arise from the same source. The mesoblast in the ovum gives rise to the muscles, bones, circulatory and lymphatic systems, the urinary and generative organs. From this fact it becomes an easy matter to infer that derangements in one set of these organs can produce, in a reflex way, if you please, or at least are very frequently associated with, derangements of the other.

"Since observation shows the numerous cases of coexistence between renal insufficiency and neuralgias, mucous membrane disorders and serous membrane inflammations, one can not question the possibility of this insufficiency producing or permitting amenorrheas, dysmenorrheas, leucorrheas and attacks of pelvic peritonitis. It is strongly emphasized that the position is not assumed that all cases of these disorders are produced by renal insufficiency, but from the fact that many of them are relieved by including in the treatment remedies that increase the urinary solids, the conclusion can not be resisted that cause and effect actually exist between many of them and the deficiency of urinary ingredients."

4 East 37th Street.

IMPLANTATION OF A GLASS BALL FOR THE SUPPORT OF AN ARTIFICIAL EYE AND MULES' OPERATION FOR THE SUBSTITUTION OF ENUCLEATION OF AN EYEBALL.

Presented to the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY L. WEBSTER FOX, A.M., M.D.
PHILADELPHIA, PA.

The satisfactory results attending evisceration for the better support of an artificial eye have led me to implant a glass or silver ball in those cases where the eyeball had been enucleated at an earlier period.

After an enucleation, and the artificial eye is adjusted, we have the objectionable enophthalmus and a fixed eyeball stare. Owing to the sinking of the artificial eye the secretions are retained in the cul-de-sac and in a short time we have the muco-purulent discharge, which adhere to the margin of the lids and also crust the anterior portion of the artificial eye, rendering the wearing of it most objectionable.

It was to overcome these objections that Mr. Adams Frost of London, in 1886, practiced the insertion of a glass ball immediately after enucleation of an eyeball. His method was as follows: After incising the conjunctiva all around the cornea, each rectus muscle was raised on a hook, seized with forceps, severed from its attachments and secured by a ligature; the eyeball was then removed and the glass ball introduced. The tendons were next united across the ball by means of the sutures previously passed through them, and finally the conjunctiva was brought together. Out of seven cases, Mr. Frost could only claim one successful operation.

Mr. Lang of Moorfields improved on Frost's method by placing the artificial globe in Tenon's capsule, which was sewed up and the conjunctiva then sewed over this. I have followed this method where the eyeball was atrophied and in several cases of simple enucleation, very successfully.

It is where the eyeball has been removed and when shrinking of the tissues has taken place that the implanted globe proves its value.

My first three operations were performed in 1895, and during the year 1896 I performed fourteen operations. In five of these cases the stitches broke and the glass ball came out. After two months I performed the second operation in the same socket. In two of these cases I operated the third time before the glass ball remained. I have found that it is useless to try restitching where the thread has cut its way out. If the wound does not heal by first intention the glass ball will be expelled by tissue contraction in spite of all protective measures.

My method is as follows: An incision is made through the conjunctiva and tissues of the orbit in the horizontal direction, corresponding scant to the diameter of the glass ball to be inserted; for instance, if the glass ball is one centimeter in diameter, the cut would be two millimeters less. The upper lip of the conjunctiva is raised, and with a sharp-pointed, curved scissors the conjunctiva and such connective tissue which lies close to it is dissected off in all directions around the incision, making a pouch into which the glass ball will fit. On account of the vascularity of the parts considerable bleeding follows this dissection, but it is easily controlled by pressure. After the bleeding stops the glass ball is inserted into the cul-de-sac with the injector. The edges of the conjunctiva are brought together by five or six stitches. Experience has taught me that it is well to keep the pressure bandage over the orbit from forty-eight to seventy-two hours. With the aseptic measures adopted in carrying out the details of the operation there will be little or no reaction. In the very few cases (two) where there was more or less pain, a few hypodermics of morphia controlled this. As regards the permanent stability of the implanted ball, time alone will tell, but of the fourteen operations performed in 1896, two balls came out ten months after the operation. There was a gradual thinning of the tissues over the globe, which was probably caused by posterior contraction of the orbital tissues, or possibly the artificial eye pressed so pronouncedly against the ball as to impede circulation, causing considerable attenuation and eventually rupturing of the conjunctiva, allowing the glass ball to escape.

MULES' OPERATION (EVISCERATION).

During the year 1896 I performed twenty-eight operations at the Medico-Chirurgical Hospital.

In regard to this operation I do not know that I can add any original point or suggestion to what I have already stated elsewhere. As time goes on and my experience becomes greater the more firmly am I convinced that ophthalmic surgery has been much benefited by adding this operation to its list, and like Brudenell Carter, I may say that "I am performing it with increasing pleasure on every available occasion."

Dr. Mules has given us the following table, which shows the advantage of this operation over that of enucleation:

ENUCLEATION	VERSUS	MULES' OPERATION.
1. Complete removal of globe and its contents.		1. Retention of the framework of the eye.
2. No stump, therefore sunken eye.		2. A firm, round globe forming perfect support for artificial eye.
3. Disturbance of all muscular relations and arrest of movement.		3. Perfect harmony of muscular movement retained.
4. A fixed staring eye attracting attention.		4. Fitted with selected eye defies detection.
5. Patient shuns society.		5. No qualms as to personal appearance.
6. Arrested development of orbit in case of children.		6. No interference with growth of orbit.

Mr. T. Herbert Bickerton of Liverpool, who has had the largest experience in England, always prefers evisceration to enucleation. In a recent letter from Mr. Bickerton he states that he is substituting silver balls for glass ones. Since January of this year I have also substituted silver balls, not for the reason that any change is made in the technique of the operation, but simply that no possible danger could arise of the breaking of the silver ball, which might remotely happen to a glass ball.

I repeat my method of performing this operation: The eye is thoroughly irrigated with a lotion, which I call formula No. 1[1] to designate it from almost the same formula for sterilizing instruments.

The eyelids are separated with the ophthalmostat. The conjunctiva is dissected off from its corneo-scleral attachment back to about the equator of the eyeball, the muscles also separated; then the cornea is excised. This is best done with a large Beer knife, as if performing a flap operation for cataract, the lower half of the cornea is removed with curved scissors, and the contents of the globe are taken out with a small scoop devised for the purpose.

Great care is necessary to remove the ciliary bodies and choroid and the head of the optic nerve, leaving a clean white sclera. Mr. Carter has devised a rubber bulb which is inserted into the scleral cavity and inflated with air to produce pressure on the central artery to prevent hemorrhage. As this application has not been a success with me, I pack the scleral cavity with sterilized gauze. After waiting a few minutes this is removed, and the contents of the scleral cavity are again thoroughly irrigated with antiseptic fluid and again packed. A sterilized glass globe, which is best suited to the case, is then inserted with a specially devised instrument. The sclera is split vertically so that the edges may be drawn together and held by stitches of No. 4 black silk, using large needles, completely hiding the glass ball. The orbit is again thoroughly irrigated with the hot solution and the socket packed with sterilized gauze. This dressing is kept wet day and night for twenty-four hours, when the eye is bathed with hot water and fresh dressings applied and continually saturated with the lotion, over which is bound a sterilized bandage.

At the end of twenty-four hours the upper eyelid is somewhat swollen, puffy and edematous, but the tumefaction gradually disappears. As a rule, the conjunctival sutures are not removed under six or ten days. It is important that both eyes are kept bandaged for at least six days. By allowing the liberty of one, too much rotation of the eye is permitted and, as a consequence, the antagonistic muscles of the operated eye pull apart and there is greater pressure brought against the sutures, which are liable to be torn out, a probable cause in several of my cases.

From the large number of operations now under observation, and no unfavorable ones reported, it may be considered a very safe one, and if we have in evisceration a method equally as safe as in enucleation, why not give the patient the advantage of the new method.

Résumé.—The total number of operations performed up to the present writing numbers eighty-two, and so far as I have been able to keep trace of them no serious results have followed any, such as sympathetic irritation or meningitis. In two cases the glass ball came out after two months. I have eight cases which did not heal by first intention and the balls came out before the patients left the hospital. I must attribute these failures to too rapid absorption of the catgut, or the glass balls being too large and the swelling of the tissues causing the silk to cut through the sclerotic and conjunctiva.

1304 Walnut Street.

AN EXPERIMENT ON A RABBIT'S EYE, TO OBTAIN AN ELASTIC, UNBREAKABLE "ARTIFICIAL VITREOUS BODY" AFTER EVISCERATION.

(MULES' OPERATION.)

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY ALBERT PICK, M.D.
BROCKTON, MASS.

Dr. J. Herbert Claiborne of New York City presented a paper on this subject at the Forty-seventh Annual Meeting of the ASSOCIATION, at Atlanta, Ga., at which he described his experiments and drew conclusions on the subject. After reading his excellent paper (JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Nov. 21, 1896, p. 1091) I was stimulated to try an experiment in this direction.

It is conceded by ophthalmologists that enucleation does not leave a sufficiently prominent and movable stump in the socket to afford the accurate and comfortable fitting of glass eyes. The objection to the introduction into the eviscerated scleral cavity of Mr. Mules' glass balls are that they subject the ciliary nerves to a constant pressure between two hard and unyielding surfaces, that glass balls are subject to fracture and that they are difficult of introduction.

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[1] IRRIGATING FLUID.

Hydrarg. bichlor	grains 1 50.
Zinci sulphocarbolatis	grains 30.
Aq. menth. pip	drachms 2.
Aq. camph	
Aq. destil	āā ounces 2.

M. ft. sol.

The same lotion without the hydrargyrum is used for sterilizing instruments.

Dr. Claiborne in his conclusions says: "The implantation into the scleral cavity of some soft yielding body which will not degenerate, which can be rendered aseptic, which will not swell by imbibition and which will not become absorbed, seems to be a rational procedure." Following out his line of thought, it occurred to me that a soft rubber ball, rendered aseptic, would possess these requirements. I had, therefore, made for me, soft rubber balls of various sizes.

Experiment.—On April 10, under anesthesia and perfect aseptic precautions, I eviscerated the eye of a rabbit. After cutting away all the cornea and separating the conjunctiva from the sclera around its corneal edges, I made two small vertical cuts in the sclera, one up and one down. The last procedure had for its object to permit the easy introduction of the rubber ball, without the aid of any special instrument. The introduction of the small rubber ball was easily accomplished, after which the incisions in the sclera were closed by fine catgut sutures and the wound edges of the conjunctiva closed by fine silk sutures.

The animal and the wound seemed to do well, but unfortunately the rabbit, which I had out for an airing on the fourth day, was accidentally killed. On postmortem examination the wounds seemed to have well progressed in the process of healing by first intention and the small rubber ball was in its proper place. I had intended to save the animal until shortly before this ASSOCIATION meeting and then examine the condition of the rubber ball and eye socket. I suppose an objection will be raised as regards the stability of the rubber within the eye-socket, it being constantly acted upon by the secretions. This is exactly the point which I had intended to investigate had the animal not been killed. I therefore tried to imitate the natural process and I placed the small rubber ball in a weak saline solution (not sterilized) in which I have left it for about two months, supposing that a saline solution would most closely resemble the natural secretions within the eviscerated scleral cavity. The rubber ball has undergone no change. I have seen soft and hard rubber appliances (rings, pessaries, etc.) left in the vagina for years which were very little, if at all, affected in their structure. [Rubber balls were exhibited at the Meeting.]

Although this may not be the ideal "artificial vitreous body" or, rather, artificial intra-ocular body, I trust it will be another stepping-stone toward finding such a one, which will remove all objections by ophthalmologists to Mr. Mules' glass balls and operation and will make more general and safer, in suitable cases, the operation of evisceration, which certainly yields a better stump and greater satisfaction to the oculist and patient.

The balls were made for me by Geo. Tiemann & Co. of New York City, whom I must thank for their assistance and generous expenditure of time and money for the molds to make the balls. They also made some hard rubber balls which might be preferred to glass balls for those who would rather use them. Dr. Wm. H. McKibben of Cincinnati kindly assisted me in the operation.

DISCUSSION.

Dr. FRANK ALLPORT of Chicago — I had the pleasure of witnessing Dr. Fox make some of these operations last fall, and I thought them as near perfection as possible. I have not made any of the implantation operations of which he speaks, but as I have seen some of the results which have proceeded from his clinics, I can testify to their value. The insertion of a Mules' globe within the scleral sac as a substitute for eyeball enucleation is a procedure against which I have always been prejudiced, and it was not until I had the pleasure of seeing Dr. Buller of Montreal, and Dr. Fox of Philadelphia, perform the operation, together with the observation of the results of past operations, that I surrendered my prejudices and consented to offer this method of relief to my patients. I have operated on a number of these cases since last fall, and although my cases have uniformly yielded favorable results, the time is as yet too short to estimate their permanency; but I for one am willing to accept the testimony of well known surgeons who have kept cases under observation for many years and are still able to endorse this procedure. The operation must, of course, be performed with rigid antiseptic precaution, as otherwise absolute failure will almost inevitably result. Great caution should be observed in the complete removal of all traces of those elements constituting the ciliary region, and as an extra precaution, I usually trim off the edges of the scleral wound in order to remove the little scleral ridge at the scleral corneal junction, underneath which may sometimes be observed traces of the ciliary body. The protruding optic disc should always be carefully smoothed down to a level with the inner surface of the sclera, in order that the glass globe may not prove an irritant to its fibers. The little shovel-shaped scoop that has been devised for the purpose of eviscerating the contents of the globe, while especially adapted for this purpose, is not essential, as any medium-sized scoop will answer the purpose as well. I have used a large sharp-edged mastoid scoop for the purpose with perfect satisfaction.

The same may be said of the instrument devised for picking up the glass globes and inserting them into the scleral cavity. The instrument is useful but not essential, as the globe may be inserted with equal facility and safety by the surgically clean fingers. The hemorrhage which occurs in the course of the operation is sometimes troublesome, but is easily controlled by the use of very hot bichlorid tampons, which are also useful in all operations where troublesome hemorrhage is liable to occur.

I think one reason why some gentlemen complain of a subsequent escape of the glass globe is from the fact that they did not use a sufficient number of sutures. I have heard of some gentlemen saying that they used three or four sutures in closing up the scleral gap. I use as many sutures as the scleral tissue will accommodate, sometimes inserting as many as seven or eight, carefully setting them well back from the edges and, so far as my own experience is concerned, have never been troubled with their pulling out. I have used both black silk and catgut sutures, but prefer the former because I believe them to be more trustworthy. The globe which is inserted should not be too small nor too large. Both extremes have their disadvantages. If the globe is too small it will afford but a scanty support for the artificial shell which is subsequently inserted, thus diminishing the cosmetic effect of the operation. If it is too large it operates unfortunately in the inevitable swelling and inflammation, which can always be depended on in varying degrees. The globe should be just large enough to comfortably rest within the scleral sac and allow a moderate degree of wrinkling and laxity of its tissues over its glass surfaces. When thus, by the use of a globe of proper size, abundant contact between the artificial shell and the sclera is produced, the artificial shell is forced into a natural and prominent position, thus admitting of a harmony of motion between the two bodies. The reaction following the operation is somewhat excessive, but so far as my own experience is concerned, has never been uncontrollable, although in one case I confess I was tempted to remove the globe. I have controlled such reaction by the use of a lotion, recommended by Dr. Fox, consisting principally of arnica, opium and lead water, which I keep on ice and freely use.

I have found it exceedingly difficult to procure artificial eyes which are adaptable to these cases. The eyes which are on the market at present have been manufactured with the old enucleation operation in view and with the idea of filling out a hollow orbital cavity. All that is necessary for a socket upon which a Mules' operation has been performed, is a broad flattish shell, but these are hard to find. But if the Mules' operation attains the position which I believe its surgical importance demands, this difficulty will no doubt be obviated by the manufacturers.

I desire to thank Dr. Fox for his most excellent paper and for the good work he has accomplished in this line of surgery, and to say with him that I believe the operation to be a justifiable one, and if this is true, it should become generally used, as it is incomparably superior to any operation with which we are familiar and, in fact, may be said to be as nearly ideal as possible. I have had no experience in the use of any globes except those of Dr. Mules, but I believe, in a general way, that the glass globes, although subject to the very remote possibility of breakage, are of the best material that can be used.

Dr. S. D. Risley of Philadelphia—Notwithstanding the adverse criticisms which have been urged against this operation by some surgeons whose ability gives great weight to their opinions, I am convinced that it is not only a justifiable and highly interesting operation, but one to be commended in prudently selected cases. It probably should never be allowed, however, to supplant excision of the globe in an extensive group of cases. For example, in suspected malignant disease of the intra-ocular membranes, in suppurative panophthalmitis, and in case of a retained foreign body when there is a probability of its lodgment in the orbit after passing through the eyeball.

Two years ago I reported a case of this kind and now present the mounted specimen, where the foreign body is seen clinging to the posterior pole of the ball near the optic nerve entrance, having penetrated all the coats. In a large number of patients, however, the operation is proper and presents many advantages over enucleation in securing the comfort and satisfaction of the individual. In the first place the deformity is much less than after enucleation. If the glass ball selected is of suitable size, in place of the unsightly empty orbital socket there is very little depression of the lids. It is open to question, however, whether the surgeon should for mere cosmetic results undertake a more difficult and tedious operation followed by a more uncertain convalescence. But the absence of deformity is by no means the most important of the results following the Mules operation. The empty socket, in most patients where the enucleation has been performed, is not only a reservoir for the accumulation of tears and mucus and dust, but forms an excellent nidus for dust and micro-organisms. There is in consequence a persistent mucopurulent discharge, causing the constant necessity for the use of aseptic washes. The artificial eye is also a constant source of annoyance: It must be frequently removed not only for cleansing but to relieve a source of irritation and discomfort. The artificial eye is hemispheric in form, the concavity being backward, the edges of rim resting on the tissues of the orbit. These tissues are more or less saucer-shaped, the concavity being forward so that when the shell is *in situ* an almond shaped cell is formed, at first filled with air, which soon absorbs, leaving a vacuum behind the shell. The atmospheric pressure upon the surface of the glass shell is then sufficient to cause discomfort and edematous swelling of the conjunctiva included within the rim of the concave shell. The truth of this statement is demonstrated by the considerable force often required to lift the artificial eye out of its bed, which is attended by a slight hissing noise as the air rushes behind it. This pressure is the explanation of the thickened and edematous condition of the orbit so frequently seen when the eye has been worn too continuously. Now, after the insertion of the glass ball in the emptied sclera the orbit no longer presents a concave, but a convex surface which is concentric with the concave surface of the artificial eye, so that no vacuum exists if it has been properly fitted. If of suitable size it also moves to and fro, up and down, in excursions which more nearly approximate those of the fellow eye than after enucleations, since the intra-ocular muscles have not been disturbed at their points of insertion to the sclera. In my own cases, even without the artificial eye, the tears and mucus do not accumulate but flow off by their natural channel and there has been no tendency whatever to inflammation of the conjunctiva. The patients have also been able to wear the artificial eye more continuously without harm resulting than after enucleation.

As regards the technique of the operation it has been my habit to make the line of the sutures horizontal instead of vertical, as has been done by some surgeons. The first step of the operation is to detach the conjunctiva about 5 mm. back from the corneoscleral junction. A Beer's knife is then inserted on the horizontal meridian about 5 mm. from the cornea, and the counter puncture made at a corresponding point on the opposite side of the ball, the knife entering behind the iris, the complete incision simply including the root of the iris above. The upper edge of the flap is then grasped with the forceps and a corresponding incision made below with the scissors. Much time and annoyance is then saved by grasping as gently as possible, with broad forceps, the ciliary body and carefully detaching the entire uvea with the flat handle of a scalpel. Then grasp it at its attachment in the region of the optic nerve, when the posterior scleral vessels may be torn away and the entire contents of the ball removed with comparatively little difficulty.

After the bleeding has ceased a glass ball should be chosen, as large as will nicely fill the scleral cavity. If it is too small there will be much overlapping of the scleral wound when the sutures are tied. I prefer for the sclera fine carefully sterilized catgut sutures, which should be placed at least 5 mm. back from the edge of the scleral opening. I regard this deep placing of the scleral sutures as of great importance, of which there should be at least five and a like number of fine, black silk sutures placed in the conjunctiva, closing it over the scleral wound.

In my earlier experiments my patients suffered greatly from extreme edema of the lids and chemosis of the conjunctiva which I think is caused by the extensive interference with the anastomotic circulation. In my later cases a firm compressed bandage has been applied and allowed to remain undisturbed for two days. In the first case thus treated, the edema and chemosis were greatly reduced; in the last case absolutely prevented. I have been struck with the rapid recovery following these operations; in every case it has been possible to introduce the artificial eye, and permit it to be worn with practical impunity at the end of two weeks, and in one case this was done on the tenth day To secure the best results after this operation an artificial eye with a larger radius of curvature than those usually found in the market is required.

Dr. G. Oram Ring of Philadelphia—There can be no question but that the operation of "evisceration of the eyeball," with the insertion of an artificial vitreous, after the method of Mr. Mules, has taken a permanent place in the list of legitimate and important ophthalmic operative procedures; but, while I wish to be recognized as an enthusiastic advocate of the operation in suitably selected cases, being quite in accord with Mr. Brudenell Carter, whom I quoted in my review of the subject over two years ago, as believing the profession indebted to Mr. Mules for one of the most remarkable and valuable improvements in modern ophthalmic surgery, I still do not believe that the method should by any means be regarded as an universal substitute for the classic enucleation.

Although the introduction of the Mules spheres was suggested about twelve years ago, it has only been during the past two years that American ophthalmologists have accorded to the subject its merited attention. Our text-books, with one or two exceptions, have been silent regarding more than the merest superficial consideration of it, and the Journal reports from the various operators have been far too infrequent. I believe all the surgeons who perform the operation frequently, have an increasing confidence in its utility. We can only arrive at a proper appreciation of the place the operation should hold by a careful, but not necessarily lengthy, publication of each failure, as well as of each success. Perhaps quite as important will be the publication of the detailed histories of those cases in which the operators have carefully considered, in each instance, the respective merits of the Mules operation, as compared with enucleation, with the reasons for the decisions in favor of the enucleations.

It is well known that at the recent meeting of the British Medical Association, in Carlisle, Mr. Bickerton of Liverpool accorded very high praise to the Mules operation. I had an opportunity, during the past summer, of examining a number of Mr. Bickerton's cases, and his beautiful results fully justify his enthusiasm. I therefore can not accord with Dr. Castillo in his recent criticism of this paper, and believe his conclusions, that only leucomatous eyes are adapted to the Mules operation, to be erroneous.

In a recent number of one of the Vienna journals (*Wien. Klin. Woch.*), Pfluger states that in order to prevent sympathetic ophthalmia, enucleation is the only proper operation. In three of my eviscerations, with the insertion of artificial spheres, distinct symptoms of sympathetic irritation were present. One was performed two and a half years ago, a second a year ago and the third six months ago. They all did well, and the irritated eye has in each case remained perfectly quiet. It has been thought by some of the operators (I think Dr. Fox and Dr. de Schweinitz are among the number), that calcareous degeneration of the interior eye tunics constitutes a contra-indication to the Mules operation. I performed the operation in a very pronounced case of the above type, during the winter, with a perfect result.

I will briefly refer to two recent cases, in both of which I decided on enucleation rather than the Mules operation. The one an acute inflammatory glaucoma in a patient 70 years of age, with organic valvular disease; the eye having been quiescent, but blind from a retinal detachment for about one year previous to the development of acute symptoms. The infiltration of the lids and peri-orbital tissue became so intense that fears were entertained for a suppurative inflammation surrounding the eyeball. This condition of affairs, coupled with a marked lowering of the patient's vitality, and the importance of an immediate removal of every possible source of further systemic depression, decided me in favor of the enucleation. The case occurred in private practice and was seen in consultation with Dr. W. F. Norris, who concurred in my opinion. Post-operative senile dementia followed the operation, the mind becoming entirely clear with returning strength; no local complication followed.

The second case was one of inflamed scleral staphyloma, with beginning sympathetic irritation. I had intended in this instance to do a Mules operation, but upon dissecting the conjunctiva from the globe found such pronounced scleral distension and attenuation that the eyeball, when freed from the conjunctival attachment, immediately protruded so far forward that I was inclined to fear a possible growth in the posterior portion of the orbit. This did not prove to be true. This excessive protrusion with such striking distension and attenuation constituted, in my judgment, sufficient reason for not risking the introduction of an artificial vitreous.

I am still using catgut sutures for stitching the sclera in the Mules operation and silk sutures for the conjunctiva.

Dr. J. L. Thompson of Indianapolis—I wish to speak of some of the conclusions and of the comparison of the two operations. Some of the gentlemen have spoken of the fixed condition of the eyeball and of patients shunning society after enucleation. Have many of you found fixation of the eyeball after enucleation, unless there was atrophy or in burns of the eye? And the question in such cases is whether you would accomplish much more by this operation. I must have seen several hundred cases of enucleation and I have not noticed this staring appearance; I should not expect to see it unless the operation were done with a pair of sheep shears or by some one who knew nothing about it. I think after you had as many cases of this operation as we have of the older one, you will find a great many cases of failure.

Dr. J. C. Dunlavy of Sioux City, Iowa—The fitting of an artificial eye is one of two objections to this procedure. The implantation of a glass ball places the thin tissue continually between two glass surfaces. It appears to me that the tissue can only last a certain length of time and sooner or later will be destroyed. The staring eyes referred to after enucleation is to me one of the greatest horrors. In late years I never enucleate an eye unless absolutely compelled to, to save a fellow eye; if I can not do anything else I do the ordinary evisceration and find the small stump left is preferable to removal of the entire globe. I have never seen any reason for this staring except that the artificial eye does not fit. Rubber balls instead of glass ones appears to me to be impracticable, for I should consider that they in time would be destroyed.

Dr. S. C. Ayres of Cincinnati I would like to mention an unique experience in the use of these balls. I was in London and bought a few of them when they first came out. A short time after, Dr. Sattler had occasion to use one of them. The operation was done properly, but two or three days later irritation set up and the stitches had to be taken out and the ball removed. We found a little pus in the glass ball; it had been a defective one with a little opening in it and had excited the trouble. It only serves to show what the possibility might be in the use of a glass ball, and I should think a silver ball might be better.

Dr. A. E. Prince of Springfield, Ill.—I have been using the glass balls for about twelve years and have not had very great success with them. In one case out of a series of six there was a splendid result; the other five failed. Now the silver ball has been spoken of and there is a point in general surgery that must be universally known, and that is that silver when in contact with granulating tissue becomes coated with lactate of silver, which is demonstrated to be a good antiseptic. Now if we use the silver ball and lactate of silver is formed, we have generated an antiseptic that may prevent failure in such cases as Dr. Ayres suggests, whereas in case of the glass ball the result would be disastrous.

Dr. George Friebis of Philadelphia—I have had but little experience with the Mules operation. I had more with enucleation, but the Mules operation in all suitable cases will undoubtedly give far better results so far as cosmetic effects are concerned, and as has been emphasized, that is one of the principal points to be considered. The cases must be properly selected, but in many cases the Mules operation is one of superiority over enucleation because the motility of the eyeball is almost equal to that of the sound eye. I have seen several cases of enucleated eyeballs that presented the staring appearance undoubtedly. One that I performed some time ago, and I think I performed the operation with a fair degree of skill, presented considerable reduction or retraction of the ball, and that in itself is a cause in many instances of that staring condition that I detect after enucleation and which is absent after the Mules operation.

Dr. L. W. Fox of Philadelphia—I wish to call more attention to the implantation of the glass ball than to the Mules operation, which will take care of itself. The gentlemen who saw the operation of implantation yesterday saw that it would have been impossible to adjust an artificial eye, and it is in such cases that implantation is of the greatest value. It produces a bulging out of the stump upon which an artificial eye can operate. My first three cases were cases of a similar character, performed in 1895, and they have since been wearing artificial eyes with good adjustment and good movement. It is not as good as in the Mules operation, but better than complete enucleation. The case on which I operated yesterday was shown to six or eight of the gentlemen today, and the reaction was very slight; I am sure they were all surprised. Had not the gentlemen been there today I should have kept the bandage on for two or three days, as I find that a great improvement; I called attention to that point in my last paper. As regards the glass ball carrying infected or septic material into the eye, all the glass balls I have been using were sterilized in boiling water and if they are defective the water finds entrance into them and I throw them away.

Dr. Albert Pick of Hyannis, Mass.—In answer to Dr. Dunlavy's objections I would say that I simply tried this experiment for the sake of finding an elastic, unbreakable, aseptic substitute for Mules' glass ball, and that the rubber, hard or soft, will not degenerate as easily as the Doctor thinks.

BACTERIA IN THE NORMAL CONJUNCTIVA AND THE EFFECT UPON THEM OF ASEPTIC AND ANTISEPTIC IRRIGATIONS.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, Pa., June 1-4, 1897.

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The works of Leber, Sattler, Gifford and others on the bacteria of the conjunctiva are practically in accord in the opinion that the conjunctiva always contains bacteria. I recently made a series of experiments upon 100 individuals. These 100 persons comprised patients (not eye patients) in the dispensary, nurses, medical students and others. The inoculations were on nutrient agar, and usually smear cultures were made. A platinum loop was sterilized by passing it through a flame, and it was rubbed over the lower part of the conjunctival sac. The patient was then made to look down and the loop was carried well up into the upper part of the sac, and finally rubbed gently over portions of the bulbar conjunctiva. It is hardly practicable to bring the loop into contact with every part of the conjunctiva, and I doubt whether the platinum loop ever touched more than half the conjunctival surface, and yet out of the 100 cases there were only thirteen sterile tubes. If then inoculations from a limited area of the conjunctiva show the presence of the bacteria in eighty-seven out of 100 cases, it is more than probable that inoculations from the whole conjunctiva would show the latter to invariably contain bacteria. One must be careful in this class of experiments to avoid touching the eyelashes or the free border of the lids, as contamination will certainly result. In eighty-five out of the eighty-seven cases where bacteria were found, the latter resembled each other morphologically. No effort was made to determine the properties of this organism, and nothing can be said of it further than that it looked like one of the pyogenic cocci.

In surgery two methods are employed to sterilize the field of operation: The aseptic method, by which bacteria are removed by mechanical means (as for instance, the irrigation of a point with water which has been sterilized by heat), and the antiseptic method consisting in the employment of chemicals which have the effect of either destroying bacteria or of interfering with their growth. Both methods were tested in two series of fifty experiments each. First the aseptic method: Inoculations were made from individuals with normal conjunctivæ. After this the conjunctivæ were irrigated three times (with an interval of five minutes between each irrigation) with water which had been sterilized by boiling, and inoculations were made from them again into agar. There was a growth in forty of the tubes representing inoculations before the employment of the aseptic irrigation; the other ten tubes were sterile, and hence are not counted in the results. After the aseptic irrigations there was a growth in thirty-two tubes, that is to say the apparent effect of the aseptic method was to produce sterility of the conjunctiva in eight cases out of forty. It is evident from this that we can not rely upon aseptic irrigations of the conjunctiva to produce sterility of this membrane. Another series of fifty experiments were then made. Inoculations were made to see if the conjunctivæ contained bacteria, and immediately afterward these conjunctivæ were flooded with a sublimate solution 1 to 5,000. Five minutes later inoculations were made from them again. Before the use of the sublimate forty-two tubes presented growth and eight were sterile. The eight are excluded. In the forty-two cases where there was a growth before the instillation of the sublimate there were nine sterile tubes after the use of this solution. The same staphylococcus which was so constantly found in the first series, was also found in the second and third series, and in the last twenty-five cases this organism was subjected to this test. The end of a platinum loop, after being thoroughly rubbed over the growth, was immersed in a solution of sublimate 1 to 5,000, and allowed to remain there for five minutes. The loop was then withdrawn and plunged into agar, and in every case there was a luxuriant growth, a result which showed that the chemical had apparently no effect on the vitality of the organisms.

Both aseptic and antiseptic methods then in my hands led to practically the same results, for by neither method was sterility of the conjunctiva obtained. I have frequently observed that persons complain of a biting sensation in the eye after an instillation of sublimate solution, and in my experiments hyperemia of the conjunctiva was produced a number of times, so I am inclined to think, in spite of what Franke has said on this point, that such solutions are more or less irritating in their effect on the conjunctiva. All that can be said of such a solution is that it may deprive the conjunctival bacteria of some of their virulence, in other words render them less effective, and then again it may actually kill some of the more superficially situated bacteria. It is more than probable that the conjunctival bacteria are so firmly attached or imbeded in the conjunctiva as to be beyond the reach of either the aseptic or of the antiseptic method as practiced by ophthalmologists, and nothing but the most vigorous scrubbing would produce asepsis.

The experiments reported here show that in so far as the conjunctiva is concerned, little reliance can be placed on the usual methods employed by ophthalmologists for obtaining asepsis.

Conclusions.—The normal conjunctiva always contains bacteria. It is probable that the bacteria found in this locality are usually of only slight, if any, pathogenic character. It should be remembered though, that bacteria ordinarily non-pathogenic may become harmful under certain conditions, that is if the tissues are bruised by the instruments or irritated by chemicals. Neither the irrigation with sterilized water nor the instillation of a sublimate solution (1 to 5,000) produces sterility of the conjunctiva, and inasmuch as both measures are futile and possibly harmful they may just as well be abandoned. These methods of sterilizing the conjunctiva are the ones usually employed by ophthalmologists, and hence the choice of them for testing this question. It goes without saying that a method which would destroy the bacteria of the conjunctiva without at the same time impairing the integrity of this membrane would be a great advantage. In operating upon the normal conjunctiva as in cataract operations, the surgeon in the present state of our disinfecting armamentarium would do well to consider the subject of antisepsis and asepsis chiefly if not solely in connection with his hands and instruments, and of course the cocain and atropin.

DISCUSSION.

Dr. **Harold Gifford** of Omaha—With these conclusions of Dr. Randolph I agree almost entirely. I have made this thing something of a study and I have found it practically impossible to sterilize the sac, as I believe everybody has found. That in some cases the normal conjunctiva has been found sterile, I think we can attribute to the method used in trying to find out whether bacteria are there or not. Now if you consider the effect of trying to get bacteria by wiping a wire loop around the conjunctiva you will see that you may get some few perhaps at one point and then wipe them off at another, and so perhaps get none. To me, the best method of testing this subject appears to be that of Bardelli, who after separating the lids widely with a speculum filled the sac with soft gelatin. Leaving this in a few minutes and then withdrawing by a pipette he made it into a plate, and by this means the conjunctiva has never been found sterile.

Now as to the reason why we can not sterilize the conjunctival sac. As Dr. Randolph has said, the skin has been shown to be impossible of complete sterilization without complete removal of the epithelium, and even that may fail. The conjunctiva is so smooth a membrane you would expect to sterilize it by wiping it well, but even if you remove all on the surface the germs from the crypts will come out and multiply and you have the same condition as before. Even if you could temporarily sterilize it you could not rely on the condition existing more than an hour or so after closing the lids and applying the bandage. Moreover, in attempting to get this much desired asepsis, we run the risk of doing more harm than good, for in using these agents you may irritate the tissues so that the bacteria that are left will proceed upon the favorable conditions left, denuded epithelium and increased blood supply, and in twenty-four hours you have a worse condition than if nothing had been done.

Just one point I would like to insist upon where I differ with Dr. Randolph, namely, that we should pay all attention to the asepsis of the hands and instruments. We do not rub the eyes with our hands, but the instruments are of extreme importance. As we are not certain of getting all the germs away from the eye before passing any instruments into the eye we should wipe off the eye with a sterile swab. I wipe off the immediate surface with a sterile swab the instant before inserting the instrument.

Dr. J. E. **Weeks** of New York—I think it would be unfortunate if the impression should go out that we must forego all attempts to render the conjunctival sac as clear of bacteria as possible. It is well known that the majority of bacteria found in the sac are innocuous. I have done considerable work in that line myself, and from the normal conjunctiva I have isolated ten or twelve distinct varieties of micro-organisms, of which only two or three were pathogenic. There is another thing we should bear in mind and that is that the bacteria there present may be pathogenic and yet create no disturbance unless they are present in large quantities. We can so lessen the number of micro-organisms present that they will be relatively harmless. We find some secretions from the lachrymal sac that escapes the casual observation, and if they are thoroughly washed out we have no trouble from them, but if no attempt is made to cleanse the sac we shall have trouble. I think the attempt to cleanse the conjunctival sac has done much to increase the number of successes in operation upon the eye. To advocate the cessation of these attempts would return us to the bad results given before antisepsis was instituted. It has been my practice ever since my studies began to use an antiseptic solution; I have used the bichlorid in strength of 1 to 5000, frequently boric acid solution, and I have yet to regret the use of those solutions, and have congratulated myself on its use in many cases where I am quite sure I should have had trouble if I had not used it.

The experiments Dr. Randolph has described are very excellent in many respects. In the use of the loop to expose the micro-organisms to a 1 to 5000 bichlorid solution for five minutes, he certainly introduced a mass of bacteria that could not be effectually reached by the solution in that space of time, and there are few who would claim that the death of these organisms would be brought about by such exposure.

Dr. A. R. **Baker** of Cleveland—I can not contribute to the pathologic study of the subject, but I have thought for many years that the bacteria present could not be washed away, and that probably if they were we should do harm in the efforts. I have my patients come into the hospital the day before the operation, thoroughly cleanse the eyelashes and lids, remove all loose lashes, scrape the lids thoroughly, as I would in preparing for operation in any other part of the body, apply a sterilized bandage and leave it on over night, and if the lids show any secretion in the morning I leave it without operation until I can bandage the lids over night and have no secretion, and so I exclude the possibility of having any large number of micro-organisms present.

Dr. **Myles Standish** of Boston—I agree with Dr. Randolph as to the necessity of cleansing the lids, but we must remember one other source of infection, however, and that is the tear sac. The question whether we have a tear-sac distended is one of the greatest importance, and the first thing to discover is whether we have a prolific source of irritation in that region.

Dr. F. C. **Hotz** of Chicago—I only wish to say a few words in regard to cleaning the retrotarsal fold preparatory to operations. It is difficult to reach all parts of the upper folds. I have seen it attempted by passing the nasal syringe or the eye dropper under the lid and expecting to flush the folds sufficient to cleanse them as well as we can, and I think a better method is to turn the lid, and fixing it with the thumb of one hand, pass the lower lid over the eyeball and press it back into the orbit. A slight pressure fully exposes the fold and you can wash it very successfully.

Dr. **Lucien Howe** of Buffalo—The remark I would make is *apropos* to Dr. Hotz's remarks, that the great difficulty is in reaching the retrotarsal fold. I have followed an excellent device for some time, the credit for which belongs to Landolt, which consists of a glass button with a tube entering near the center. This button is put under the upper lid and by holding in this way [demonstrating] the fold is brought out and can be flushed thoroughly. He recommended it first for flushing the eye in ophthalmia neonatorum, but it is excellent for general use.

Dr. **Robert L. Randolph** of Baltimore—The point which Dr. Weeks has made is a good one. It is quite possible that the entire mass of organisms was not penetrated by the sublimate, but I should have added that this identical organism has been subjected to the usual tests at the hands of others and found to retain its vitality after immersion in sublimate solutions, so that the facts are as I have stated them, namely, that the organism which is to be found so often in the normal conjunctiva is proof against the germicidal action of sublimate in the strength employed by ophthalmologists.

THE BEST METHODS OF STERILIZING OPHTHALMIC INSTRUMENTS AND SOLUTIONS OF MYOTICS AND MYDRIATICS.

Presented to the Section on Ophthalmology at the Forty-eighth
Annual Meeting of the American Medical Association,
held at Philadelphia, Pa., June 1-4, 1897.

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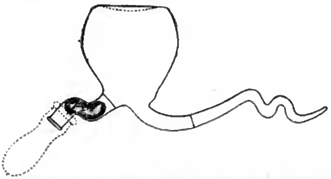
That process of sterilization is of course the most useful which gives the best results and can be most quickly carried out, as boiling, where it is convenient, has been the means par excellence long recognized for destroying bacteria. Specially devised droppers, as Stroschein's[1] and Llewellyn's bottles, in which the solutions of mydriatic or myotic can be boiled before use, are satisfactory, but unless a cap is provided for the exit tube, or the tube itself has a bend that serves as a trap and keeps the solution in the bottle free from dust, there is always danger of contamination of the solution upon repeated handling. Even if the bottle is provided with such a trap, the solution which collects in it should be removed each time before use by gently flaming the tip, or by the use of disinfectants. The mere forcing of more solution through the unsterile tube will suffice to contaminate the contents of the flask.



I have had a flask made which with very little trouble appears to obviate this danger. After use the tip of the bottle may be dipped in a 1 to 1,000 trikresol, or 1 to 5,000 formalin solution (either of which could be conveniently kept in a low, wide-mouthed bottle) when sufficient liquid will be drawn in to fill the bend and serve to seal the flask and prevent the entrance of germs from the air. When the flask is to be used the first few drops of liquid may be wasted and the tip dipped again in the 1 to 1,000 solution to destroy any germs adhering to the outside. These flasks may serve for solutions sterilized by heat or chemicals. Methods of chemic sterilization, or a combination of chemic sterilization and boiling are better than boiling alone. As has been pointed out by Franke,[2] G. de Schweinitz and the writer,[3] and others, the use of boric acid for the purpose of sterilization is unsatisfactory, as its germicidal properties are much less than were originally supposed. The objection to mercuric salts lies in the strength as well as the poisonous properties of the solution which should be used to insure complete sterilization.

Credé[4] has pointed out the value of the acetate and lactate of silver as germicides, and the idea suggested itself that these salts might be useful in sterilizing collyria if they would not be too easily decomposed, but the ready precipitation of the metallic silver made them useless for this purpose. The ever faithful carbolic acid has been largely replaced by trikresol, the latter being less poisonous and more efficacious in weaker solutions, and as the writer[5] pointed out in 1894, collyria made up with a solution of 1 to 1,000 remained thoroughly sterile under the most adverse conditions, and were not irritating to the eye. Upon writing to five prominent ophthalmologists, I learned that only one had used trikresol in place of carbolic acid, but he reported very satisfactory results. It so happened that I had left the solutions used in my original experiments three years ago, in a closet by my working table, and recently I tested them to see if they had become contaminated. One of the bottles still contained about 5 c.c. of the eserin solution, while the water had almost entirely evaporated from the others, showing that the bottles were but loosely corked and access of dust was possible. The contents of these bottles were tested again and found free from bacteria. Pergens,[6] in 1891, recommended the use of tablets containing a sufficient antiseptic. Valude[7] and Burnett[8] have recommended formalin for preserving collyria and instruments. According to the latter, 1 to 2,000 formaldehyde solution is not too strong, but as some individuals are more sensitive to the action of this reagent, and as it has been found that much greater dilutions of formaldehyde are in most instances useful, I prepared cocain hydrochlorid 2 per cent., eserin sulphate and atropin sulphate 1 per cent., with 1 to 5,000 solution of formaldehyde. Tested within ten minutes afterward they were found sterile. The dilution was next increased to 1 to 10,000 and, to 10 c.c., five drops of a culture two days old of pyogenes aureus were added. Cultures made after twenty minutes showed growth from the eserin solution only, but the next day all were sterile. Therefore, 1 to 5,000 dilution can be relied upon, and even 1 to 10,000 with a little care may be considered safe. Should the solutions become contaminated from the dust, or from contact with an infected pipette, a very few minutes time is all that is necessary for the destruction of the germs by the formaldehyde.

When we turn to the disinfection of instruments we are met at once by another problem, viz., the necessity of perfect sterilization without blunting the edge or tarnishing the instruments.

Randolph[9] has carefully tested the use of absolute alcohol for this purpose, which is recommended also by de Schweinitz[10] and others, who have found the following process satisfactory: First, sterilization in 98 to 99.5 per cent. alcohol for twenty minutes and then rinsing once in sterile water. Out of 100 tubes inoculated by Randolph, from seventy-five instruments treated in this way only five were found infected. When, however, the instruments were purposely infected with pyogenic bacteria, treated with absolute alcohol for twenty minutes and tested, forty-three out of fifty showed contamination.

While these experiments proved that instruments as ordinarily infected in their case could be sterilized by absolute alcohol, they demonstrated also that where septic material was present a more thorough treatment was necessary. Theobald[11] and Lanier recommend washing the instruments in hot running water for a few minutes, while boiling the water, allowing it to cool and then rinsing the instruments in it did not destroy the germs. Formalin has also been recommended for sterilizing instruments, and Alexander,[12] quoting from the clinic of de Buck and Vanderlinden, and his own work, eulogizes its value, advising 1 to 500 solution, which he says does not blunt the instruments nor injure them in any way. To form an idea of the greatest dilution safe and convenient, I tried 1 to 1,000 and 1 to 2,000 formaldehyde solution, and also the gas itself. I used a cataract knife, dissecting knives, and dissecting and hemostatic forceps, the latter on account of their rough edges which would easily retain infected material. It was necessary to leave the instruments which had just been washed in water after a dissection, in a fomaldehyde solution of 1 to 2,000 for thirty-five minutes before the sterilization was complete. With 1 to 1,000 solution, ten minutes gave satisfactory results. The edges did not appear to be blunted, nor was any tarnishing noted during this time. If the instruments were kept in the solution for two hours or more, a slight deposit appeared, but this could be easily rubbed off, leaving the instrument bright and clean. After sterilization by formaldehyde solution the instruments should be dipped in sterile water before being used, to free them from adhering formaldehyde, which might be irritating.

To try the effect of the gas, the use of which has been suggested, on instruments, a small copper drying oven was taken, about 15 c.c. of 40 per cent. formalin solution placed in a dish in the bottom and a small bottle of calcium chlorid introduced to absorb the moisture. It is understood of course that the formaldehyde solution is placed in the box in the first instance some hours before the disinfection is begun, so that the atmosphere may become saturated with the gas. The instruments were washed for a moment in hot water and laid in this oven. Tested after ten minutes they were found sterile. They were then infected with pyogenes aureus, placed in the oven, or box, and tested again after thirty minutes and found sterile. The knives were infected with pyogenes aureus (by leaving the blade in the culture from one to two minutes), then wiped with dry cotton and, after ten minutes contact with the gas, tested by culture. They showed growth. This test was repeated with the difference that the knives after infection were rinsed in hot water in a dish, wiped dry and then placed in the formaldehyde bath. After ten minutes no growth was noted. Dissecting knives and cataract knives tested in this way were found sterile. The hemostatic forceps required fifteen to twenty minutes for sterilization. In practice, in preparing for the operation, it would be a very simple matter to rinse the instruments in hot water, wipe them dry and place them in a bath of formaldehyde gas. They could be safely left here for hours without injury. A wise precaution in practice might be to rinse the instruments sterilized in this gas, just before use, in sterile water, to remove irritating formaldehyde, though no odor of the gas could be detected upon them. This is perhaps the simplest way of sterilizing the instruments, as they could be laid on a perforated porcelain tray in the box and the tray removed to the sterile water when the operation is begun. Fifteen c.c. of 40 per cent. formaldehyde solution should disinfect a box of one cubic foot for a week or more, and as long as it is closed the odor of the gas is scarcely perceptible. In fact, as the instruments are not injured by the dry gas, they might be kept in it continuously.

In conclusion it seems to me that trikresol, 1 to 1,000, with a separate bottle full to hold and rinse the pipettes, or 1 to 5,000 formaldehyde solution and the described dropper for collyria, and formaldehyde gas for of instruments, are from a bacteriologic standpoint the best methods of disinfection.

REFERENCES.

1. Stroschein: Archiv f. Ophthal., Bd. xxxviii, Abt. ii, p. 155.
2. Franke: Arch. für Oph., Bd. xxxvii, Abt. ii, p. 73.
3. G. E. and E. A. de Schweinitz: Therapeutic Gazette, Sept. 15, 1898.
4. Credé.
5. E. A. de Schweinitz: Therap. Gazette, July 16, 1894.
6. Pergens: Annales d'Oculistique, December, 1891.
7. Valude: Revue Prat. d. Trav. de Méd., Paris, 1896.
8. S. M. Burnett: Ophthalmic Record, March, 1896.
9. B. Randolph: Johns Hopkins Hosp. Bulletin, September and October, 1896.
10. G. E. de Schweinitz: Text-Book Opthal., 1897.
11. S. Theobald: Trans. Am. Ophthal. Soc., 1896.
12. Alexander: N. Y. Med. Jour., Jan. 9, 1897.

DISCUSSION.

Dr. S. M. BURNETT of Washington—In the face of such demonstrations as we have just had, little need be said in regard to this subject. I have had the pleasure of conversing with Dr. de Schweinitz during the time he has been making these experiments, and it seems to me he has offered us the ideal method of dealing with this question. I am particularly satisfied with the report he has made with regard to formaldehyde, because it is carrying out what I thought when I first heard of the use of formaldehyde. It seems to me to possess, in the highest degree, all the essential qualities of a perfect disinfectant. It has not toxic properties and it has a penetrating power that no other disinfectant has. It is certainly something to congratulate ourselves upon that we are now able to lay aside the forms of mercury. They are not satisfactory and we are all satisfied that they are dangerous.

The experiments of Dr. de Schweinitz have proven the value of formaldehyde in disinfecting instruments beyond dispute. We can all have that sort of apparatus in our offices. In regard to the formaldehyde solutions which I first advocated there is some disadvantage because of the evaporation or gas formation, but if prepared freshly that does not apply. Even under those circumstances, however, formaldehyde is vastly superior to anything else we have.

Dr. **Harold Gifford** of Omaha—It seems to me there is danger of what I consider by far the most practical method being somewhat neglected. I refer to the action of boiling water. While I have not the slightest doubt that the method referred to is an efficient one, it seems to me there is a source of fallacy that has been to some extent overlooked, namely, that we have not a method of precipitating formalin as we have with bichlorid. When we tried to precipitate bichlorid all the conclusions are found to be fallacious, and to some extent this may be found to apply to formalin. We expose our instruments and after a time put them in the culture room. Now how can we know that there is not enough formalin, in spite of washing, sticking to the instruments to prohibit the growth of germs. Boiling one minute suffices to kill the germ, if care is taken to do the boiling in closed vessels particularly, and if five or ten minutes is given, there is not the slightest danger to the instruments if they have been wrapped in cotton, and you have instruments that are sharp and sterile. Boiling them first and transferring to another solution I consider faulty. Why not take them from the boiling solution and use them at once? That seems to me the simplest method and the best.

Dr. **C. F. Clark** of Columbus—I agree with the last speaker in always boiling my instruments wrapped in cotton, and on withdrawing the instrument wipe it with the cotton that was wrapped around it. I feel a degree of certainty that I could not feel in withdrawing an instrument from such a box as this.

Dr. **Robert L. Randolph** of Baltimore—I think that we are under a slight misapprehension as to the exact action of heat. While wrapping the blades in cotton would undoubtedly protect them from mechanical injury, in the boiling process the high temperature would blunt the edge all the same. Dry heat will also dull the edge of the instrument in the same way. It has been shown that not only moist but dry heat, when of high degree, invariably impairs the keenness of a knife.

Dr. **E. A. de Schweinitz** of Washington—I might have said that 15 c.c. of formaldehyde solution should disinfect a small box like this for a week, no matter if it is opened three or four times a day, and consequently an instrument case might easily be kept clean all the time.

The amount of gas generated is about 1.5 per cent., and if the odor is strong when the door is opened one can be thoroughly satisfied that the instruments are sterile. In regard to the remark of Dr. Gifford about the method of testing, that might apply where the solution itself is used, but I do not think it applies to the gas. When the instruments are taken out one can not detect the slightest odor of gas, but rinsing them in boiling water would remove any particle of gas that might be adherent.

BEST METHODS OF PREPARING DRESSINGS FOR CATARACT CASES AND THEIR CHARACTER AND COMPOSITION.

Presented to the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, June 1-4, 1897.

BY CASEY A. WOOD, M.D.

CHICAGO.

I must confess that I feel very much like dissenting from the proposition implied in the title given to this communication, because I am in considerable doubt as to whether there is any *best* methods of preparing dressings for the average cataract case. My own experience and the results that I know others to have obtained teach me that when the patient has been prepared for operation and when the extraction has been deftly and completely accomplished, when the lips of the corneal wound have been carefully approximated and when no intra-ocular debris rests between the latter, when, in other words, the operation leaves nothing to be desired, the dressing is of little or no importance. In such a case it is of no moment whether the lids be simply closed with a strip or two of isinglass plaster or whether the eye be subjected to the elaborate toilet recommended by many distinguished writers and teachers. Indeed, in words which I have elsewhere used, as to the form that the dressing should take, we recognize today about the same difference of opinion that existed in the time of von Graefe and Beer; one school cries out for heavy bandages and absolute rest, the other for liberty and no dressing. One extremist applies to both ocular regions a thick flannel or gauze bandage over pads of borated gauze or even iodoform cotton, while other enthusiasts advocate a narrow strip of isinglass or other plaster, just large enough to keep the lids together. Doubtless each one of us considers his method the best, but even a superficial study of the course pursued by the healing process after cataract extraction will show that the great majority of cases do well with any kind of bandage or with none at all. If the operation be correctly done, it does not matter much whether or not the dressing be negatively aseptic or positively antiseptic. If, however, the operation fail in any important particular, the question may well arise as to what description of dressing is most likely to assist repair of the surgical traumatism, both by preventing extra-ocular infection and by favoring apposition of the margins of the wound. The first indication is probably best met by some covering for the eye that, while not entirely excluding ventilation, will yet be sufficient to prevent the entrance of morbific germs and irritating dust. It should also be sufficiently absorbant to take up the tears and mucus that commonly flow from an eye that has recently been operated upon. I have been unable to convince myself that a dressing impregnated with germicides of sufficient power to destroy any pathogenic organisms that have lodged in or about the eye does not do more harm than good. At any rate, the dressing is not the proper agent that should be depended upon to do the work of sterilizing the conjunctival sac, lids and lid edges. If this is attempted the hyperemia which the bactericide generally sets up is, at least positively harmful in the great majority of cases.

What good purpose is subserved by the attempt, so often made, to keep the corneal margins *in situ* by the use of bandages and other appliances? You are all well acquainted with these devices, the little rolls of cotton (aseptic and antiseptic), the simple roller, the starch bandages and other appliances of a similar nature. I have tried and discarded all of these, as I have found them entirely unnecessary in uncomplicated cases of extraction and never saw any good come from their employment even when in times of trouble, a mechanical support seemed desirable.

In my hands sufficient protection from external irritants, combined with an effective provision for the absorption of post-operative discharges, may be secured by the following dressing, carefully sterilized and rolled in a sterilized towel until the moment of application. It is far from being original with me:

A layer of borated or plain absorbent cotton or wood wool two or three millimeters in thickness is applied to the surface of two single layers of sterilized gauze. These are together cut (so that they will adhere and form one piece) with a pair of scissors, in oval form and of a size to cover the orbital openings, reaching from the eyebrows to below the inferior orbital margin. Three pieces of adhesive plaster, each three or four inches long, keep this dressing in place and are so arranged that no portion of them presses upon the eyeball. This is accomplished by placing the first over the upper border of the pad, and firmly attaching it to the skin above the superciliary ridge; the second is carried parallel with the nose; the third completes the triangle. Such a dressing filters the air passing to the eye of its germs and dust; it is comfortable to the patient, does not unduly press upon the eyeball and readily absorbs lachrymal and other secretions. It does not, like the roller, starch and antiseptic bandage, encourage vascular congestion, and, finally, it may be impregnated or smeared with any agent that the surgeon cares to apply. Neither the patient nor his officious friend is at all likely to succeed in removing it, although the surgeon may examine and drop collyria into the eye readily.

What can be more provoking to the surgeon than to find, after obtaining a good operative result, that a careless nurse or a restless patient has added a newly opened corneal wound, a hernia of the iris or loss of vitreous to his other anxieties? A finger thrust, a pillow end jammed into the eye, a slight blow upon the globe or any other of the dozen little accidents that may happen to a person with imperfect vision moving about in darkened rooms, may nullify the most brilliant and correct efforts of the operator. Especially when night comes on, or when the patient begins to move about, should the eye be protected from injury by some sort of a shield or mask. Fuchs uses the wire-woven protector, introduced as long ago as 1883. There are many modifications of this mask in the market, one of the best of which has been suggested by Frothingham and Würdemann.

Certain operators who make use of the roller bandage gain protection by starching the dressing. When this has dried the eye will receive a considerable blow without injury.

Snellen has used a turtle-shaped aluminum shield, about ten centimeters long and five wide, placed over the eye and held in position with strips of adhesive plaster; it forms an admirable protector. One of the best shields I am acquainted with is the papier mache half-mask, which, when carefully adjusted to the nose and surrounding parts, makes a light, comfortable and effective protector. A small proportion of patients object to wearing any mask, complaining that it prevents them from sleeping and makes them nervous. In such cases I find that one may get along very well with a large, stiff and very concave eye shade placed over the dressing and held in place with a piece of rubber plaster.

DISCUSSION.

Dr. H. KNAPP of New York—I should like to begin with the paper of Dr. Wood because that is the beginning of the after-treatment. I think the object of the bandage is to immobilize the eye. We can fairly state that the prime factor in obtaining healing by first intention is rest. If that is obtained for the eye an immense gain has been made. Among the bandages I think there is none so good as the old binoculus. Dr. Wood mentioned it but gives preference to another kind of bandage, which I endorse and have used for about ten years. I usually use a pad of sterilized gauze, two or three layers, and this is put on moistened in a very weak solution of bichlorid. Upon that I place a pad of absorbent cotton, dipped in the solution also, and if you do that you can mold it exactly to the eye and secure a perfect splint. If it is applied dry it is impossible to put the plaster strips on because the cotton is resilient and does not hold it. It is easy to put one plaster strip over the nose, one over the brow and then a cross strip. This is all right where there is a sterile field and the operation has been perfect. It is convenient to the patient and can be removed readily. Nevertheless, we have a certain number of patients where the condition of asepsis has been thorough that are restless and continually move the eye during and after the operation, and there I think the binoculus is better. I think too, when the patient can be relied upon not to toss very much it is the most comfortable bandage. Anything that becomes stiff is unpleasant. Professor Alt tried all the bandages upon himself and says that the most unpleasant is the isinglass strip placed upon the eyeball.

I think it is proper to look at the eye next morning, and in the case of a simple extraction it is essential, for there may be a prolapse and it is best to cut that at once, when you can make a clean iridectomy, and very little harm has been done by having attempted to operate upon a patient who was not fit for simple extraction. I open the eye next day, look at the edges of the lids and the conjunctiva first, and if a simple extraction I look also at the wound to see if there is anything the matter with it. Generally a prolapse indicates itself by pain, but there are some cases where the patient says that he has felt nothing. I do not think it is proper to leave the small prolapse to nature. It requires some after-treatment to help the healing forces of nature.

If there is no secretion I do not wash the eye at all, but if there is even the slightest amount I wash it with plain warm water and get the eyelashes free of any material that would be apt to decompose and by its irritating qualities produce more secretion of the conjunctiva. I use germicides as little as I can, scarcely putting anything into the sac, but when the lachrymal sac comes into play I am particular to have that cleansed carefully.

In regard to beginning suppuration of the flap, I have found the different methods used are more or less unreliable, and I have seen as many cases get well by the cautery as by other means. I think if we stick to simple methods we shall do better than by using too much treatment. We still lack simplicity, and we are not yet at the end of our search.

Dr. MYLES STANDISH of Boston—I would like to relate a case I operated upon some years ago, an old man with cataract in both eyes and with purulent discharge from each tear sac. He had been to the infirmary for a number of years and each surgeon had put him off with antiseptics for the tear sac, without ever stopping the discharge. The old gentleman finally came back and said he was resolved to risk an eye. He knew the chances of losing it, but he was taken into the house, the sac cleansed and the eye operated upon. After the extraction the lids were opened and iodoform in large amount was literally filled into the sac. The next morning the other eye had apparently a teaspoonful of pus, but the eye operated upon was dry. This treatment was continued and at the end of eight or nine days the bandage was removed and the iodoform discontinued, but at the end of twenty-four hours he had an infection of the entire edge of the wound. The actual cautery was used, iodoform was again begun and kept up for two weeks. No recurrence of the pus showed itself and the result was good.

Dr. J. C. DUNLAVY of Sioux City, Iowa—I wish to speak of the advice to leave the eye for four days without examining it. It appears to me that if for no other reason than the fear that iritis might occur, four days is entirely too long to let it go without observation. As to the treatment of prolapsed iris, the question of operating or letting it alone should depend very largely on the character of the prolapse. If in the form of a bead and you have reason to believe it will not be taken care of, naturally the sooner you cut it off the better, but if more or less flat, I believe nature will take care of many of those cases.

As to immobilizing the eye with a bandage, I know we have talked about it for many years, but having tried the bandages on my own eyes I am satisfied that it can not be done and the tighter you apply the bandage the more danger you will have when you have a patient that will not keep quiet. There is a certain number, as Dr. Knapp said, that will try to move the eye. In those cases, by a certain amount of education, you can occasionally obtain better results by leaving the bandage more or less loose.

Dr. **Leartus Connor** of Detroit—In cases in which it is desired to cleanse the outside of the eye, or the eye itself, I have found a procedure which is a most efficient method. It is devoid of any possibility of injury to the eye. Hot water, as you all know, is an extremely efficient agent in many ways. A tumbler is taken, filled with water at as high a temperature as the patient can bear, the hotter the better; the tumbler is brought to a level in contact with the nose [demonstrating], and then tipped up as the head is brought forward, so that the eye is entirely immersed in the hot water. You may use an antiseptic solution if you please, but it is the method of making the application which I desire to place before you. You get the effect of moist heat without any mechanical disturbances of the relation of the eyelids to the eyeball.

Dr. **Albert B. Hale** of Chicago—I have used the method Dr. Wood has described. He mentioned some very nice experiments about immobilization. He says that if one eye only is protected there is a tendency to winking and the lid is not held so thoroughly as it ought to be; if both eyes are protected and the patient put into a dark room the tendency to winking is much reduced.

Dr. J. A. **Lippincott** of Pittsburg—I have been very much interested in the remarks in regard to immobilization and I suppose that when it is spoken of it is immobilization of the lids that is meant, for immobilization of the eyeball is impossible. Immobilization of the lids is possible by means of plaster, and while there may be some objection on the grounds of discomfort, I think this can be removed by the use of very thin and properly prepared plaster.

I was also interested in the statement that there is no way of sterilizing the plaster. I would like to show a box I got up some time ago for containing plaster [exhibiting box]. It is a small, circular, metal box with a split in the side of it, from which one end of the plaster can be drawn out. There is little movement allowed so that the cover slips slightly on the box and one can close the slit from which the plaster extends, almost absolutely. This box can be sterilized quite readily by putting it in a dry oven. All my experiments proved it to be sterile and I think that with the instrument shown by Dr. de Schweinitz it could be absolutely sterilized without injury to the plaster. It can not be used in the steam sterilizer. You draw out the plaster as you wish to use it and what remains in the box is in a reasonably good condition and does not require to be sterilized every time it is used.

Dr. F. C. **Hotz** of Chicago—I wish to add my endorsement to the necessity for observing the first principles of surgery that wounded tissue should have as complete rest as we can secure to it if we wish natural healing to take place. This we can only obtain by binocular bandages so far as the eye is concerned. I still am an advocate of bandaging both eyes. It is the principle to observe and not the particular method. Another point I wish to mention is in regard to the pressure bandage. It was mentioned in one of the papers, that if anything happened to the wound a pressure bandage might be used to replace the prolapse. This is irrational treatment and if we take so much precaution to keep the eye protected from pressure I do not see why we should intentionally put pressure upon it.

Dr. S. L. **Ziegler** of Philadelphia—I have always used the lighter isinglass plaster dressing for cataract cases, by placing a strip across the upper lid and a cross-piece coming down on the cheek to hold the lid perfectly quiet, thus forming a T-shaped splint. As soon as desired we can remove the vertical cross-piece. The strip on the upper lid will sufficiently immobilize the eye and at the same time allow the eye to be opened wide enough to wash it. In addition to this a light dressing is applied consisting of a piece of gauze with a little cotton laid over the margin of the lower lid to catch the moisture (aqueous blood and tears), and over this the black Liebreich patch. The unprotected eye is also immobilized in the same way. This dressing seems to me to answer every purpose and is sufficiently cool to avoid conjunctivitis. All dressings are removed on the fourth day.

Dr. **Dudley** S. **Reynolds** of Louisville—I wish to emphasize the necessity for securely fixing the unoperated eye and I think the lightest possible dressing constitutes the most desirable form. I am in the habit of varying the dressing in accordance with the prominence of the brow and cheek. A protruding eye is more readily pressed upon by dressings placed over it than a receding one. I am an advocate of quiet for the wounded eye and of non-interference with it so long as it manifests no sign of trouble, but the dressing should be of such a character as to enable the surgeon to remove the dressing on the slightest indication of trouble.

Dr. J. A. **White** of Richmond—In a paper of ten minutes it is impossible to go into details that are necessary to put yourself entirely right and therefore criticism is made because you are not understood. Someone stated that it was strange that I did not look at the eye before the fourth day. I did not say that; I said I did not examine the eye unless necessity called for it. I rarely take off the bandage before the third, sometimes on the second day. One of the most distinguished ophthalmologists in America wrote me that he did not look at the eye for eight days, and that is the result of his forty years' practice. I was astonished at it, as you will be.

In regard to prolapse, I have simply stopped operating upon it unless I know that it is there immediately after the operation, because the cases I have lost are the ones that I meddled with and the ones I let alone usually get along very well. Until I find that method giving me worse results than the other I shall still let them alone.

Dr. C. A. **Wood** of Chicago—There is some confusion in referring to the immobilization of two different structures, the lids and the eyeball. The reason why I said it was difficult to understand the rationale of bandages pressing upon the eyeball is that the pressure is made there upon the anterior segment. When the eye is closed it is the equatorial region we have to deal with and such a pressure is likely to do harm because it is distributed over the wounded part of the eye and brings about the very condition we wish to avoid. As to immobilization of the lids I think I have gained as good results by impressing upon the patient the absolute necessity of keeping the eye closed and by speaking about it two or three times a day. I have obtained as good results in this way as by attempting to keep it closed by bandages.

I am glad Dr. Lippincott has been able to sterilize the plaster. I undertook a number of such experiments and found that when one succeeded in accomplishing disinfection, the plaster was so affected that it was useless.

ASTIGMATISM FOLLOWING CATARACT OPERATIONS AND OTHER CORNEAL SECTIONS.

Presented to the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

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The brief observations here presented are to be regarded as addenda to the paper on the subject read by the author before the Pan-American Medical Congress in 1893.

Probably in every case of cataract extraction the necessary corneal section is followed by a permanent change in the corneal curvature and refraction. In a few cases the change in curvature is such as to reduce or correct, or slightly over-correct, a previously existing asymmetry of the cornea, and the astigmatism caused by it. In the larger proportion of cases the ultimate effect is a considerable astigmatism, greater in amount and essentially different in direction from any astigmatism that may have been present before the operation.

The fact that the astigmatism is new, and also that it is due to change in the corneal curves, give it increased importance. Those who always have had astigmatism never perceive the distortion of retinal images that it causes. Those who acquire astigmatism slowly may feel some disturbance on account of such distortion, but are not distinctly conscious of its effect. Those who have astigmatism corrected in early life quickly become accustomed to the greater distortion of the retinal image caused by correcting lenses. But cataract extraction is usually done at an age when acquired astigmatism is always found very annoying, when the full correction of astigmatism, congenital or long present, is sometimes not practicable, and astigmatism after cataract extraction comes on suddenly, always causing marked distortion of the retinal images. Hence, it is certain to cause annoyance; and its correction is generally a real service and one which is appreciated.

Post-operative astigmatism necessarily follows such a corneal section, although it is not necessarily always permanent. The form of the cornea depends on the intra-ocular pressure and the relative resistance of different parts of the corneo-scleral coat. Only when intra-ocular pressure is entirely removed, as it is by the escape of the aqueous humor through the corneal section, can the cornea take a form determined entirely by its own structure. This does not usually differ from that which it had before the operation. When the healing of the corneal wound becomes sufficiently advanced to cause the retention of aqueous humor, the intra-ocular pressure begins to rise and gradually increases until it reaches the normal.

If the resistance of the sclero-corneal coat were entirely uniform throughout its whole surface, the intra-ocular pressure would cause the eyeball to assume the shape of a perfect sphere. The departure from this perfectly spherical shape is determined by the difference of resistance of intra-ocular pressure by different parts of that coat. Thus, the reinforcement of the cornea and sclera in the neighborhood of the sclero-corneal junction by the ring of tissue constituting the ciliary body, strengthens the coat at this point so that it resists the intra-ocular pressure and causes a depression, making the corneal surface the part of a smaller sphere set into the side of the larger sphere of the sclera.

After corneal section, the cornea at the line of incision is weakened as compared with the remainder of the sclero-corneal coat and correspondingly gives way or bulges. Its bulging at this point necessarily causes an equivalent flattening in other parts of the same meridian. The extent of this bulging and distortion is proportioned to the relative weakness of this line of corneal tissue. Hence, when the cicatrix is weakest, the bulging and distortion and consequent astigmatism are greatest.

Generally the first measurement after cataract extraction shows the highest astigmatism; but not unless the wound has become thoroughly closed and the tension of the eye restored to normal. Thus, in a recent case on the fourteenth day after extraction, the astigmatism was found to be only 2 D. But a week later it had risen to 10.5 D. After this it gradually declined in the usual manner. At the first measurement the anterior chamber had been re-established for some days, and it was not noted that the tension of the eye was below normal. Yet the subsequent change of astigmatism can only be accounted for on the supposition that at the first observation the ocular tension was still lower than at the time of subsequent observations. With this exception the cases that I have watched have shown the highest astigmatism at the first examination; and only very few have shown a slight temporary increase of astigmatism at any time afterward.

The highest post-operative astigmatism I have yet encountered was 26 D. in one of the cases mentioned in my former paper. The case was one of simple extraction and of normal healing. In two and one-half months the astigmatism had fallen to 0.75 D.

The amount of astigmatism that remains permanently is always very much less than that discovered at the first testing, two or three weeks after a cataract extraction. While this is often 10 D. or upward, the final amount is very rarely over 3 D. In one patient I have seen it 4.5 D. in the right eye and 5 D. in the left, three and a half years after the cataract extraction. But in no other case have I seen it remain as high as 4 D.

The practical application of this fact is that where one is compelled to prescribe glasses within a few weeks after extraction, which glasses will be worn by the patient when out of the reach of anyone who can properly measure refraction, it is better, however high the astigmatism may be at the time, to give a cylinder of not over 3 D. This will almost certainly in a few weeks be nearer the proper correction than the lens indicated soon after operation. In prescribing such glasses it is also important to make the spherical somewhat stronger than is at first required, because it is equally certain that after the first few weeks there will be found an increase of hyperopia as well as a decrease of astigmatism.

All observers have noticed that in post-operative astigmatism the cornea is flattened in the meridian at right angles to a straight line joining the ends of the corneal wound. An incarceration of the iris, or irregularity of healing due to other causes, may occasion a slight variation in the meridians of astigmatism, but such variations in direction are slight. In many cases no change occurs in the direction of the principal meridians during the weeks or months through which the astigmatism continues to diminish.

In regard to the influence of different forms of cataract operations, on the amount or course of the astigmatism, I am still unable to recognize any decided influence from the position of the corneal section. This seems rather strange. One would be inclined, *a priori*, to expect the greater astigmatism when the corneal section was situated near the area of the cornea through which the rays had to pass, or from which the reflections of the ophthalmometer were to be obtained. It is possible, however, that the depression at the sclero-corneal junction permits from the same incision a greater distortion of the cornea when the incision is situated at the periphery; and that thus it serves to balance the effect of proximity of sections placed nearer to the center of the cornea.

CATARACT STATISTICS WITH COMMENTS.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

BY HERMAN KNAPP, M.D.

NEW YORK, N. Y.

Statistics of cataract operations can be made from different points of view. It is plain that complicated cases do not give as favorable results as uncomplicated ones, and therefore almost all statistics refer only to uncomplicated cataracts. Yet this does not make them comparable with one another, for Dr. A. will count cases among the complicated which Dr. B. will consider uncomplicated. To present a faithful picture of what an operator has accomplished, all his operations should be counted, or if he excludes some he should supplement his statistics by a special report, best with abstracts of the cases.

Another point in which reports differ is the standard of success and failure. Shall we make success dependent on the acuteness of sight, or on the perfection of the recovery? Sometimes we have to extract lenses from incurably blind eyes, say a chalky, partially or totally dislocated lens in a young person, the eye being otherwise in good shape and its fellow normal. If we succeed in getting that cataract out without mutilating the eye, we do not only improve our patient's appearance, but his chances for the preservation and quiescence of the eyeball. To accomplish this requires greater skill than most other cataract operations, and the surgeon is entitled to put such a case to his credit. Let him call it an "operative success." It is questionable, however, to classify under this heading extractions that have been followed by a smooth recovery, but will yet require an after-operation to clear the pupil from remnants in order to restore sight. However probable the good result of such an operation may be, we are not justified in counting those cases among the perfect results until their vision *is* perfect. I find, for instance, in a very excellent report as to accuracy and completeness of the records of all cases of extraction[1], the summing up of the second series of 100 cases as follows: "Full success in ninety-seven cases. Visual acuteness from 5–5 to 5–30 in seventy-two. In twelve cases V. was not tested, the recovery not yet being complete, or secondary cataract being present; but in all, the convalescence had so far advanced that a good result could confidently be expected."

The following remarks are based on an analysis of the last 1,000 extractions I have made:

Intercurrent with the first 600 consecutive cases there were thirty which I checked off because they had complications so grave as to render the restoration of useful vision improbable. I have made use of this series on a previous occasion, for the discussion of special points connected with the great question of cataract extraction[2]. The series of the 400 consecutive cases comprises all extractions, without an exception, that I operated on from Sept. 19, 1894, to May 17, 1897.

Reserving a detailed communication for the *Arch. of Ophthalmology*, I beg to present for your consideration and discussion the following topics:

1. *Complicated cataracts, their nature and treatment, with final results.*—Among the 400 cases fifty-seven, that is 14.25 per cent., showed the one or other complication, namely: 1. Diabetes, six cases; five smooth, one protracted recovery. This agrees with my previous experience that diabetes has not so bad an influence on the recovery from cataract operations as is stated by some authors. 2. Albuminuria, two cases; good recoveries. 3. Diabetes and albuminuria, two cases; good recoveries, the one had retinal hemorrhages which two years later had disappeared with S. 20/20. 4. Gout, one case; healing slow, result good. 5. Rheumatism, one case; good. 6. Insanity, three cases; two failures by suppuration, one good visual result, but patient on the day of discharge committed suicide. 7. Chronic bronchitis, cough, two cases; one good, the other perception light (partial suppuration). 8. Traumatism, three cases; good. 9. Foreign body in lens (came out with cataract), one case; good. 10. Chronic dacryocystitis, six cases; three good, three failures by suppuration. 11. Excessive myopia, four cases; good, but one had sudden detachment of the retina seven months after discission. 12. Synchysis, three cases; good. Diagnosed by copious escape of watery fluid during the section, cataracts expelled by external manipulation. 13. Choroditis, disseminate and atrophic, three cases; recoveries smooth. 14. Chronic iridochoroiditis, eight cases; seven yielded satisfactory results from V. 4/200 to 20/70, one was a failure by closure of pupil after cysto-iridectomy. 15. Maculæ corneæ, four cases; good. 16. Chronic glaucoma, three cases; recoveries smooth. 17. Optic nerve atrophy, two cases; recoveries good. 18. Nystagmus, congenital, one case; good. 19. Chalky lens, dislocated into anterior chamber, one case; good operative success. Lens expelled by external manipulation with permanently round pupil. 20. Previous syphilis, one case; good. There were eight failures among the fifty-seven cases of complicated cataract, *i. e.*, 14 per cent. Of the cases of dacryocystitis 50 per cent. were lost.

2. *Extractions with iridectomy, their indications and visual results.*—The conditions which determined me to make an iridectomy during or prior to the extraction in the last 400 cases were as follows: 1. Tendency to iris prolapse, nine cases; 2, glaucoma, preliminary iridectomy, two; 3, diabetic retinitis, preliminary, one; 4, albuminuria, preliminary, one; 5, patient demented, one; 6, profuse hemorrhage in anterior chamber, two; 7, patient unmanageable, eight; 8, iris fell over knife, five; 9, rigidity of sphincter iridis, one; 10, loss of vitreous, one; 11, no reason stated; *a.* preliminary two, *b.* simultaneous three, five; 12, peripheric section, two; 13, synchysis, rupture of suspensory ligament, lens tremulous or dislocated, nine; 14, iritis, iridocystitis, iridochoroiditis, five; 15, corneal section insufficient, iris bruised, one; 16, splinter of wood in lens, one; 17, to remove thickened capsules, one; total, fifty-five cases, *i. e.*, 13.75 per cent. were combined with iridectomy.

On these fifty-five cases fifteen *secondary operations* were made, namely: Discission, eleven; extraction of capsule, two; iridectomy for consecutive glaucoma, one; cyst-iridectomy, one.

The final visual results were as follows: *Good, i. e.*, S. 20/200 to 20/20 in forty-two cases; *moderate* (S. 2/200 to 18/200), six cases, namely, from cataract accreta one, glaucoma chronicum two, retinitis diabetica one, synchysis one, no cause noted one; *failure* seven cases, viz., iridocyclitis six, tendency to prolapse and chronic conjunctivitis one.

3. *The reactive processes* may be divided in two groups:

A. Inflammatory.—1. Mild iritis, six cases; five with good, one with moderate (S. 10/200, complicated, good operative recovery) vision. There was a moderate number of non-irritative filiform synechiæ, simple agglutinations of the torn pupillary border of the iris to the shreds of the incised or lacerated capsule. These had no influence on the visual result and did not thicken the center of the capsule. 2. Protracted iridocyclitis, two cases; *a*, angular incarceration with temporary + T. pilocarpin, S.=1/200; *b*, iris wounded with knife; abscised. Remnants laboriously pressed out $1-\alpha$. 3. After-hemorrhage into anterior chamber, 20/40. 4. Slow closure of wound; patient aged 83 years; kept in bed; on eleventh day pneumonia and pleuritic effusion. Complete recovery. Discharged thirtieth day; V.= 20/40. 5. Partial purulent wound infection, two cases; *a*, slight hypopyon. Recovery 20/200, vitreous still turbid. *b*. Old iritis, iridectomy twenty-two years previously. Difficulty in delivering lens (cat. nigra). Anterior chamber opened daily $1-\alpha$. Cornea clearing. 6. Total suppuration, four cases; all from wound infection in laborious operations. In three the infection was primary, in one secondary by exposure on the fifth day; remained partial until the fourteenth day. S.=0, in all.

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[1] F. Zenker: Report of 1,000 cataract extractions made by H. R. H., the Duke, Dr. Carl in Bavaria, Wiesbaden, Bergmann, 1895.

[2] See Transactions of the Eighth International Ophthalmological Congress, Edinburgh, 1894, p. 14, etc.

B. Mechanical.—1. Anterior synechiæ. A goodly number of small adhesions to the scar was noticed with distorted pupil, but good sight and no irritation. One case was severe; broad, traumatic adhesions on sixth day, slowly developing glaucoma. Patient having good sight, left hospital secretly, returned in twenty-five days with pronounced glaucoma, Tn.+2, anterior chamber totally obliterated, iris and lens touching cornea. Fingers 1′. Iridectomy with Graefe's knife. Escape of vitreous as usual in such cases. Eye immediately free from pain and irritation, anterior chamber filled again, Tn., fingers at 3′. 2. Prolapse of iris twenty-six cases, *i. e.*, among 343 simple extractions,=7.6 per cent. It occurred mostly in the first night, frequently on the second or third day, rarely later. The eyes were inspected daily and the prolapse abscised at once; cocain anesthesia was sufficient; in two, general anesthesia was administered. The latter should always be resorted to if the patient is nervous or refractory. The recovery and vision were good in all cases but one, where from chronic cough, prolapse occurred on third day. The prolapse was abscised but partial suppuration set in; S.1/∝. Good projection.

4. *Secondary operations.*—The 400 extractions were succeeded by 160 after-operations, *i. e.*, 40 per cent. They were: 1. Enucleation, one case, viz., traumatic dislocation of lens into the anterior chamber; extraction leaving capsule in did not relieve the glaucomatous iridochoroiditis. 2. Iridectomy in one case of glaucoma following extraction, raised 1/200 to 3/200; good operative result. It might have been a good visual result had the patient not withdrawn from treatment for two months. 3. Iridectomy in three cases of glaucoma following discission; immediate relief, rapid recovery and good sight in all. One case of acute glaucoma occurring on the fourth day after the discission, was cured by eserin and subcutaneous injections of morphia. 4. Extraction of thickened capsule, after discission with one and two needles had failed, two cases; results good. 5. Discission 153 cases, *i. e.*, 38 per cent. The visual improvement was very considerable. The ultimate visual acuteness in the 139 uncomplicated cases was: 20/20 in nineteen: 20/30 in forty-three; 20/40 in thirty-two; 20/50 in seventeen; 20/70 in thirteen; 20/100 in ten; 20/200 in five. It had deteriorated the sight in no case; it left the sight as it was in two cases; it was followed by acute glaucoma in four cases (1 per cent.), which by eserin in one and iridectomy in the three other cases, was cured with the ultimate vision better than the primary. In one case the discission was successfully repeated two months later, the opening of the capsule having partially contracted.

One of the cases of glaucoma assumed a most serious aspect. Under the picture of cyclitis hypopyon developed, for which no source of infection could be discovered. The iris began to bulge and the eyeball-tension rose to Tn.+1. The pupil remained open. An iridectomy put an immediate stop to all the symptoms. Pain, bulging of iris, and + Tn. disappeared, the vitreous cleared up and the patient regained excellent sight. The whitish sediment at the bottom of the anterior chamber can not have been purulent, *i. e.*, real, infective, hypopyon, but merely puriform, *i. e.*, bland, such as we find it on introducing aseptic irritant substances into the anterior chamber. The other cases showed no alarming symptoms, most of them no reaction at all.

5. The visual results of the last 400 cases was as follows: From 20/200 to 20/20, 359 cases, *i. e.*, 90 per cent. good results; from 1/200 to 18/200 twenty-nine cases, *i. e.*, 7 per cent. moderate results; from 0 to 1/∝ (perception of light) twelve cases, *i. e.*, 3 per cent. failures. Full vision, 20/20 was obtained in twenty-three cases, 6 per cent.; almost full vision (20/30) in seventy-one cases, 18 per cent.; vision good enough for all purposes (20/40) in sixty-seven cases, 17 per cent.; 20/50 in sixty-four cases, 16 per cent. The visual results of the preceding 600 cases (not before published) were as follows: 20/20, 106 cases; 20/30, 156; 20/40, ninety-three; 20/50, sixty-three, etc. V. from 20/200 to 20/20, 572 cases,= 95 per cent., good; V. from 1/200 to 15/200, sixteen cases,= 3 per cent., moderate; 0 and 1/∝ twelve cases,=2 per cent., failures. The results in that series are somewhat better, but it has to be remembered that thirty cases intercurrent with and additional to the 600, have been omitted as offering too poor a prognosis. Thirty cases out of 600 is only 5 per cent., which should be borne in mind when these statistics are compared with others that rest on a different basis. Adding the results of the two series, *i. e.*, a series of 1,000 successive cases, we obtain according to the conventional calculation: Good vision in 93.1 per cent.; moderate in 4.5 per cent.; failure in 2.4 per cent.

Combining as above the results of the two series, we obtain the following data on points also discussed in this paper. Of the 600 extractions of the first series fifty-two, *i. e.*, 8.6 per cent[3]. were combined with iridectomy; of the 400 extractions of the second series fifty-seven, *i. e.*, 14.25 per cent., which makes 52+57 =109 iridectomies in 1,000 extractions, *i. e.*, 10.9 per cent. Prolapse of the iris occurred in fifty-five cases of the first series, *i. e.*, fifty-five in 548 cases of simple extraction, which represents 10.3 per cent. In the second series there were twenty-six cases of iris prolapse among 342 simple extractions, *i. e.*, 7.6 per cent. In the two series there were eighty-one cases of prolapse of the iris in 891 simple extractions or 9.1 per cent. In 300 cases of simple extraction published by me before (*Arch. of Ophth.*, 1888, '89, '90) there were in three separate series severally 8 per cent., 6 per cent. and 12 per cent. of prolapse. In an extended series of cases every complication occurs. At the Eighth International Ophthalmological Congress (l. c. p. 17) I summed up the results of the fifty-five cases of prolapse which happened in the 600 cases under consideration: Forty-nine had good vision, two had moderately good vision, two lost the sight in the eye operated on, and two lost the sight in both eyes, in the non-operated eyes by sympathetic ophthalmia. The latter appalling calamity is fortunately rare and occurs where the iris is wounded, in the combined extraction oftener than in the simple. Secondary operations were performed in 66 per cent. of the first series, in 40 per cent of the second. They were discissions in almost all cases and will sum up higher in the latter series, when more time has elapsed for patients to return.

DISCUSSION.

Dr. G. E. de SCHWEINITZ of Philadelphia—I am in hearty accord with the suggestion that cases of cataract presenting marked complications should be recorded separately. The operator is certainly entitled to the credit of an "operative success," even if the visual acuity does not reach that standard which we call a success, provided the nature of the case was such that it precluded the possibility of the restoration of a visual acuity amounting to one-tenth. In the Philadelphia Hospital I operate on many complicated cases—insane patients, cases with chronic conjunctivitis, chronic bronchitis and cases with advanced general diseases, for example widespread arteriosclerosis, diabetes, etc. Some of my results have been surprisingly good; others have been poor, although in all my experience in this hospital I have only once had a suppuration, and that was localized. In another hospital I have had two general suppurations and lost the eyes, one occurring after extreme prolapse of the vitreous, the patient at one time having had sugar in the urine, and the other in a patient who had chronic conjunctivitis and seborrhea of the face. In patients with chronic bronchitis I prefer the combined operations. Insane patients are usually satisfactory; occasionally I have been obliged to use a form of straight-jacket after the operation. It would be instructive to compile a statistical table of the usual results in cataract patients at long periods, one or even years, after operations.

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[3] See Trans. Eighth Internat. Ophth. Congress, Edinburgh, 1894.

Dr. S. M. Burnett of Washington—My own experience has been that astigmatism immediately following cataract extraction is sometimes very enormous; that is, that at the end of two weeks there may be an astigmatism ranging as high as 8 D. It is evident that the visual acuteness does not then represent to the surgeon's credit what it should. The cornea does not settle down to the normal curvature under three months after the operation; I have noticed a gradual change for the better up to that time. So in registering the acuteness of vision some idea of the time of taking it should be taken into consideration before we can accept them as definite results. Usually the longer the time after the operation the examination is made, the more to the credit of the surgeon will it be.

Dr. H. B. Young of Burlington, Iowa—These remarks remind me of an experience I had some time ago with a patient who had glaucoma in one eye and cataract in the other, which was operated on. At the end of six weeks the vision was so poor that I thought it a failure. The Javal ophthalmometer showed an astigmatism of 8 D. With proper correction she could read any type on the page. Four months later she had the same good vision with a correction of six diopters.

Dr. L. Webster Fox of Philadelphia—At present each man is a law unto himself as to the relative results he gets. Some fixed law should be established, and I think we could do no better than follow Dr. Knapp, whose experience is second to none in this country and equal to many of those abroad. Of course we all try to arrive at J. 1. and 20-20, but we are frequently disappointed. Our results may be brilliant at the time of operation, but through some change brought about by senile changes in the individual they fail. Quite a number of cases recur to me, in which after a severe winter the patient has come back complaining of failing vision. I remember in one case with a very brilliant result, 20-20 and J. 1., the vision has fallen to 20-70 and I can find no cause for it. He is eight years older than he was when operated on, and I think there is a sympathetic condition growing with his senility.

Dr. F. C. Hotz of Chicago—It seems to me, if I understood Dr. Knapp right, that in his method of registering cases he introduces a new meaning to the term complicated cataract that might lead to confusion. Under this term so far is understood complications in the eye, but what Dr. Knapp calls complications includes syphilis, bronchitis and other diseases, and thus the number of complicated cataracts would outnumber the uncomplicated ones.

Dr. Dudley S. Reynolds of Louisville—I hardly think it is fair to classify those ultimate results found in aged people as having at all to do with the operation. We all know how prone old people are to changes in the choroid and retina, and it is hardly fair to pick out the case of a man who has had good vision for three or four years and put down changes in the optic nerve or choroid as having any relations to a past cataract operation.

Dr. G. E. de Schweinitz of Philadelphia—I do not think that was implied. The case was only mentioned as being an interesting observation.

Dr. Frank Allport of Chicago—I wish to add one instance to the case given by Dr. Knapp as occurring in people with mental infirmities. I have had one similar experience, an old man whom I operated on for cataract with apparently good results. After eight or ten days, the nurse having left him for a minute to go to the linen closet, the patient jumped out of bed, threw himself out of the window and was killed. It may be interesting to state the case as showing the amount of care we must give such patients.

Dr. S. D. Risley of Philadelphia—I am very much pleased to see that Dr. Knapp has included the cases suffering from general dyscrasia among the complications of cataract. I am sure this ought to be considered in a large number of cataract cases before giving our prognosis. I have been for many years insisting that cataract is, in a large number of cases, a complication of some general disease. The difficulty is where we shall draw the line with diabetes, gout, rheumatism and syphilis. A large number of old people are gouty or rheumatic, and have changes going on that might produce cataract. I am glad to see attention drawn by so eminent authority to their harmful influence on healing after an operation. Surgical delirium is one of the not infrequent sequelæ. I have had three examples within the past year. I remember that a few years ago one of my colleagues had a patient who jumped out of the window at the hospital a few days after the extraction of cataract, in a fit of surgical delirium.

Dr. G. C. Savage of Nashville—Speaking on the point of insanity none of us would operate on patients who were insane at the time of operation. I have had two cases in which insanity followed the operation and it was clearly due to the use of atropin. Of course this occurs in patients peculiarly susceptible to the drug. I discontinued the use of it and the result was good.

Dr. Harold Gifford of Omaha—The question of how much more we should exercise in keeping these patients from jumping out of windows, etc., is important. I have had one or two cases and it seems to me that where it is possible we should have the patient watched all the time, at least until the first night or two is passed. A device that is not original with me, but which is worth trying, is to tie the hands loosely but so they can not get them up to pull at the bandage. The patient could be instructed as to what to expect, and it gives no discomfort and may prevent injury. The question is how much of this delirium results from the excitement and fear that occurs when these old people awake suddenly and find that they are absolutely blind; particularly if they have had one good eye. In some of these people, while I believe most firmly in closing both eyes ordinarily, I have left their good eye open so that if they should wake up and have a tendency to be scared they can reassure themselves by the use of this eye.

Dr. C. W. Kollock of Charleston, S. C.—One class of patients has not been mentioned. It includes those patients that have false images before the removal of the cataract. I had a patient who saw all sorts of images at night, and the family thought she was losing her mind. After the operation these images disappeared and she was not troubled again until the last few months, when thickening of the capsule began to appear and she is now seeing them again.

Dr. J. A. Lippincott of Pittsburg—Some years ago I introduced a table with such a report to explain the cases where vision is below 20-40. It might be enlarged to include all cases below 20-20. On one side of the table was 20-40, 20-60, etc., down to nothing, and then running along the upper side of the table were the causes for the deficient vision, atrophy, detachment, opacity of the capsule, etc. A table like that can be added, or something of that kind should be appended to one's report so as to give at a glance an explanation of all the cases.

Dr. Herman Knapp of New York—Dr. Hotz was perfectly correct in saying that constitutional troubles ought not to be put into the statistics of complications. It is the ocular complications that are ordinarily reported. In the last 400 cases I wanted to go over the whole subject, however, and mentioned all the factors of the system that could influence my judgment or determine my action as to the operation, after-treatment and results. Complications like diabetes would weigh very little because we now think they do not seriously prevent good results. As to the point made by our president, as to the time statistics should be taken, that is an exceedingly important feature, but it is difficult to ascertain statistics after any length of time. There are between forty and fifty of my cases where only the primary results, when the patient was discharged two or four weeks after the operation are noted. When they turn out badly I get to see them again, but when they remain good there is no cause for them to come; so if we make up our statistics with the results that are attainable that is all we can do. It might be well to state the primary vision and the ultimate vision, for it would complicate our tables very little.

As to cases of deterioration I want to ask whether an operation on the capsule had been done in the case mentioned by Dr. Fox. Dr. Fox—Yes, sir.

Dr. Knapp—I have found that where the capsule is not divided after the operation, at some time or other it is apt to block the vision. I can mention a case that Swanzy had operated on and the patient could read well for years, but gradually her vision was becoming dimmer and dimmer, and was only 10-200 when she came to see me. The whole fault was nothing but a clouding of the capsule and when I made a division of it she was restored to good sight. That prompted me to make secondary operations in as many cases as I could get hold of. After this capsulotomy there is one objectionable feature that I would like to eliminate, that is the occurrence of glaucoma. It is sometimes acute and comes on within a few days after the operation. Then it is almost always cured. It occurs in about 1 per cent. of all the cases, which is a great deal. In a few cases it is cured by eserin. Glaucoma may occur in such cases any time after the operation. I saw it once in a case of Dr. Agnew after thirty years.

A REPORT OF THIRTY CASES OF CATARACT EXTRACTION WITH REFERENCE TO THE TREATMENT OF PROLAPSE OF IRIS FOLLOWING SIMPLE EXTRACTION.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association at Philadelphia, Pa., June 1-4, 1897.

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Undoubtedly the ideal method of cataract extraction is that in which the lens is removed without iridectomy. But in view of the much better results obtainable by the average operator with iridectomy I am inclined to think that simple extraction should be reserved for selected cases. Certainly it is safe to say that young operators should always use the combined method and wait until their judgment and skill are considerable before attempting simple extraction. The adoption of strict asepsis and antisepsis by the modern ophthalmic surgeon has, no doubt, made simple extraction of cataract more popular at the present day; but the great drawback still remains in the liability of prolapse of the iris coming on after the operation. On my return from Europe two years ago I determined to adopt simple extraction. Twenty out of thirty cataract cases were consecutively operated upon without iridectomy, and in four of them prolapse of the iris ensued in one or more days. This was a large percentage, but even the most skillful surgeons, acknowledge 6 to 9 per cent. It is evident then, that the most careful operator must often face the problem of iris prolapse and the important question arises how best to deal with this very likely complication.

Desiring to ascertain the procedures employed by various prominent surgeons in this country and in Europe, I wrote to a number of them. Among the answers were letters from Dr. de Schweinitz and the late Dr. Keyser of this city, Dr. Knapp and Dr. Noyes of New York, Dr. Fuchs of Vienna and Dr. Trosseau and Dr. de Wecker of Paris, some of whom I will quote, and afterward I will describe my own method somewhat in detail.

Dr. Knapp kindly wrote as follows: "For the last several years I have, or rather Dr. R. O'Born as my associate at the New York Ophthalmic and Aural Institute, has been in the habit of inspecting each eye within twenty-four hours after an extraction, be there symptoms of reaction or not. If there is iris prolapse I cut it at once, reduce the edge of the coloboma and obtain, in almost every case, as undisturbed a recovery as if I had made an iridectomy before or during the extraction. Formerly I inspected eyes the first time, three days after extraction if the patient felt comfortable, and abscised prolapse, if at all, rarely before the tenth day. This gave rise to high degrees of astigmatism on the one hand and to an impure artificial pupil on the other. I mean irregular incarceration of the edges of the coloboma. During the last years I have made simple extraction in relatively more cases than ever before. Prolapse of iris has been very rare, and when it occurred the immediate abscission converted the case into one of combined extraction. I make the abscission in manageable patients under cocain and in nervous and unruly patients under ether."

Dr. Noyes is in the habit of doing an iridectomy as early as possible unless the prolapse is very small.

Dr. de Schweinitz usually follows the rules laid down by Dr. Knapp, whom he quotes: "If the prolapse is discovered within a few hours after its occurrence it is cut off and the edges of the iris reduced exactly as after the operation of iridectomy. If the prolapse is not noted until the third or fourth day it is allowed to remain. Small prolapses may disappear, others produce no irritation, while still others become larger, constricted at their bases or cystoid. These are allowed to remain until the irritation has disappeared and then they are amputated in the same manner as a small staphyloma is abscised." "In a few cases in which there has been some gaping of the wound after the amputation I have inserted a delicate silk suture."

The following is a translation of Dr. Fuchs' letter: "If in the days following the extraction prolapse of the iris occurs I not only cut the iris off, but I cut it out; that is, I draw it a little forward, carry it away with the scissors and go then with the Daviel spoon in both corners of the wound in order to place back the coloboma. I consider the thing ended only when both of the sphincter columns stand equally deep and a regular coloboma exists as if an iridectomy had been done. It is true that this does not succeed perfectly in all cases, as for example, when the patient squeezes the eyelids too much and thereby the vitreous threatens to come out. In cases where subsequent excision of the iris has been done I have seen only one case of iridocyclitis. Otherwise the cases have gone along very nicely. I commenced the simple extraction only two years ago and I still operate on more than half the cases with iridectomy. For this reason I have up to this date only 725 simple extractions to show with about 6 per cent. with prolapse. This would therefore give about forty cases of subsequent excision. Those cases where the iris only late (*i. e.*, after the first eight days) and by degrees pressed itself to the wound, and which in these cases is usually very small, I generally leave untouched."

Drs. Oliver and Risley cut off the prolapse if it is discovered within forty-eight hours, otherwise it is allowed to remain.

In my own cases I have always cut off the prolapse as soon as it is discovered, which fortunately has always been within forty-eight hours. I have also been extremely careful to thoroughly cocainize the eye and to use strict asepsis in every detail, and antisepsis as well, where indicated. In removing the prolapse I used no speculum, but had my assistant employ a retractor and, if needed, the fixation forceps, to pull down the globe. This is somewhat unhandy for the operator, but much safer for the eye. I think that prolapse of the iris could often be avoided if greater care were exercised in the expulsion of cortical matter, clear cortical masses being especially dangerous.

The preliminary preparation of cataract extraction consisted of having them under control for about two or three days before operation. The whole body, including the scalp, was bathed in warm water and soap bath, the nasal passages carefully washed out two or three times daily with an antiseptic wash and the conjunctival sac flooded three times a day with a saturated solution of boric acid. A purge was given the day before operation.

Name.	Age.	Diagnosis.	Condition.	Operation.	Visual result.	Remarks.
M. S.	61	Cataracta matura senilis.	P. P. good.	Simple extraction, O. D.	20-40	
S. M.	58	Cat. intumescens senilis.	P. P. good.	Simple extraction, O. D.	20-40	Small loss of vitreous.
R. S.	69	Cataracta matura senilis.	P. P. good	Simple extraction, O. S	20-80	Secondary operation two months.
B. A.	74	Cataracta matura senilis.	Per. good, proj. not so good.	Simple extraction, O. S	20-70	Nerve off color; secondary operation.
J. C	77	Cataracta matura senilis.	P. P. excellent	Simple extraction, O. S	20-30	
G. A	48	Cataracta matura senilis.	P. P. excellent	Simple extraction, O. S	20-30	
M. B.	61	Cataracta matura senilis.	P. P. excellent	Simple extraction, O. S	20-50	Iris prolapse discovered following day; abscission at once; cataracta secundaria.
S. B	71	Cataracta matura senilis.	P. P. good	Simple extraction, O. D.	20-20	
K. McK	51	Cataracta matura senilis.	P. P. good	Simple extraction, O. D.	20-40	Iris prolapse twenty-four hours; abscission at once.
J. K.	62	Cataracta matura senilis.	P. P. good	Simple extraction, O. D.	20-40	
M. G	80	Cat. matura complicata	Percep. good, projec. fair.	Simple extraction, O. S	20-50	Secondary operation: gross choroidal changes.
M. B.	64	Cataracta matura senilis.	P. P. good	Simple extraction, O. D	20-50	Cat. secundaria; secondary operation two months.
W. C.	65	Cataracta matura senilis.	P. P. good	Simple extraction, O. S	20-80	
A. McB.	59	Cataracta matura senilis.	P. P. excellent	Simple extraction, O. S	20-30	Secondary operation in one year.
D. McD.	49	Cat intumescens senilis.	Counts fingers badly...	Simple extraction, O. D	20-40	Cataracta secundaria; Secondary operation; O. S. corneæ maculæ. V = 4-200.
L. B.	53	Cataracta matura senilis	P. P. excellent	Simple extraction, O. S	20-cc	Iris prolapse discovered in forty-eight hours; abscission at once; secondary operation to be done.
F. S.	72	Cataracta matura senilis.	P. P. excellent	Simple extraction, O. S	20-40	
W. K	68	Cataracta matura senilis.	P. P. excellent	Simple extraction, O. D	20-30	Secondary operation five months.
C. K.	76	Cataracta matura senilis.	P. P. good	Simple extraction, O. S	20-40	
H. E.	59	Cataracta matura senilis.	P. P. good	Simple extraction, O. S	20-50	Iris prolapse twenty-four hours; abscission at once.
D. S.	64	Cataracta matura senilis.	P. P. good	Combined extraction, O. D.	20-30	
F. A.	68	Cataracta matura senilis	P. P. excellent	Combined extraction, O. S.	20-30	Secondary operation six months.
G. W.	48	Cataracta matura senilis.	P. P. excellent	Combined extraction, O. S.	20-20	
C. M.	83	Cataracta matura senilis	P. P. very doubtful	Simple extraction, O. 2.	Doubtful o.	Both eyes operated upon: patient very unruly: refused to open lids for several weeks after operation: secondary operation to be performed.
J. D.	68	Cataracta matura senilis	P. P. good	Combined extraction, O. D	V. 20-30	
P. K	72	Cataracta matura senilis.	P. P. good	Combined extraction, O. D.	V. 10-40	Cataracta secundaria.
W. S.	59	Cataracta matura senilis.	P. P. good	Combined extraction, O. D.	V. 20-40	
M. McC.	64	Cataracta matura senilis.	P. P. good.	Combined extraction, O. D.	V. 20-30	
W. B.	56	Cataracta matura senilis.	P. P. good	Simple extraction, O. D	V. 20-40	Detachment retina O. S.; no indication of same O. D.
E. S.	71	Cataracta matura senilis.	P. P. good	Combined extraction, O. D.	V. 20-40	

All instruments except the Graefe knife were sterilized in soda solution. The Graefe knife was dipped in a boiling soda solution and, along with the other instruments, put in absolute alcohol and all carefully wiped with sterilized gauze. The solutions of cocain and boric acid were rendered sterile as far as practicable. Cocain (2 per cent.) was always instilled into the eye about twenty minutes before operating (and repeated), as this seemed to produce anesthesia of the iris, preventing the patient from squeezing the lids during the delivery of lens or during iridectomy. At the time of the operation the patient's face was thoroughly washed with warm water and soap, followed by bichlorid, 1 to 2,000. The eye was washed out with a 1 to 5,000 solution, and just before the incision a 1 to 2,000 solution was dropped over the globe, which I believe is the custom of Dr. Knapp. My hands and those of the assistants were carefully looked to. Lately I have used sterilized gloves as employed by Landolt. These are put on immediately after washing the hands in the bichlorid solution and are not removed until the time of the operation.

A very light aseptic gauze bandage with pads (dry) was used in every case. The eye was washed daily with boric acid solution and atropin was instilled. In some cases the bandages were removed in five or six days, and in others not until the fourteenth or fifteenth day. No case was confined to bed more than seven days, four days being about the average.

I am indebted to my assistant, Dr. Martin, and also to the resident physicians of St. Mary's Hospital for the very thorough manner in which they carried out antiseptic detail, as in none of the cases was there the slightest evidence of suppuration.

GLAUCOMA.

Presented to the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

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The term glaucoma, which formerly meant sea-green pupillary reflex; with more or less complete blindness, described by Walther as a condition in which the patient sees nothing and the surgeon likewise nothing, has come to mean so much that it now really means nothing definite. The nearest approach I could come to a location of the structural lesions which give rise to the symptoms of glaucoma would be the ciliary region of the eye. As a matter of fact, disturbances in the nutrition of the ciliary muscle, with or without corresponding disturbances in the ciliary body, presenting all the varying characteristics from a reflex hyperemia to a fulminating parenchymatous inflammation, give rise to some degree of ocular tension, accompanied by undue fulness of the retinal veins and some degree of depression of the surface of the optic disc. Perimetric registration may be required to complete the diagnosis in some mild cases. In acute inflammatory cases this means of diagnosis, if desired, could not be practiced.

The degree of ache varies from the slightest sense of continued discomfort to a sense of excruciating pain. Clinically considered, the inflammatory attacks of cyclitis which present sharply defined ocular tension, with turbidity of the refracting media, sluggish or entirely absent pupillary movement, with well-defined corneoscleral injection, may safely be accounted manifestations of rheumatism or gout; excepting alone those eyes which have been subjected to some recent injury. If iridectomy be done in such cases, it must be supplemented by active antirheumatic medication. I believe it unwise to perform iridectomy during a paroxysm of inflammatory glaucoma. With full dose of Rochelle salts followed, as soon as the bowels have moved, by ten, fifteen or twenty grains of salicylate of sodium in a half pint of water every hour until the pain is subdued; then every four hours alternately with suitable doses of the muriate of pilocarpin in a like quantity of water; accompanying each dose of medicine with four to six ounces of nutrient fluid, such as malted milk, beef tea or other similar fluid, permitting no other nourishment to the patient until all inflammatory symptoms have been subdued (and it may be safely calculated this may be accomplished within two or three days), it will be found that the inflammatory process may be favorably modified, even in the worst cases, within two or three hours from the administration of the aperient. If, when the force of the inflammation has been checked and the humors of the eye cleared up so as to permit satisfactory ophthalmoscopic examination, it then be found that the disc is cupped, the retinal veins enlarged and tortuous, the field of vision characteristically contracted, no matter whether ocular tension is discoverable at this period or not, iridectomy should be done.

In all cases where iridectomy seems to be urgently needed, it must not be forgotten that general anesthesia will be required, and that this nearly always provokes emesis and severe headache; in fact, engorgement of the vessels of the superior extremity of the body, conditions which favor rupture of already turgid vessels. I am convinced many eyes are sacrificed in the hasty performance of iridectomy, before efficient means have been employed to reduce arterial tension. The pain of all inflammatory processes is promptly abated in direct proportion to the reduction of blood pressure. The dangers incident to iridectomy, when blood pressure is high, far outweigh any possible disaster from delay pending the preparatory treatment of the patient. I am persuaded the customary one-fifth, or one-sixth part of the iris is entirely too large a section to remove. I have been frequently amused in reading some of the chimeric explanations of the supposed changes which take place in the eye after iridectomy has been done.

We have all seen in various injuries of the eye, how inflammatory products and traumatic hemorrhages in the anterior chamber likewise disappear. It is no uncommon observation that the glaucomatous eye which has been subjected to iridectomy suffers, with each recurring relapse, more or less hemorrhage into the aqueous chambers. There is every reason to support the theory that drainage through the vessels of the iris into the aqueous chambers constitutes the sole advantage to be derived from iridectomy in the treatment of glaucoma; and there is, to my mind, no tangible basis for the theory that iridectomy is, of itself, a permanent curative agency. I regard it as an absolutely necessary auxiliary measure, in all the varying types of the so-called inflammatory glaucoma. I believe that in the incipient types iridectomy can do no good. I believe it is useless in any case where the iris is not involved. My experience with sclerotomy, both anterior and posterior, has been such as to leave me in doubt as to the value of either form of the operation. I have long regarded Hancock's operation as an unjustifiable procedure, subjecting the eye, in many cases, to ultimate loss of sight. It is nearly always followed by recurring attacks of cyclitis, which by continuity invade the choroid, eventually extinguishing sight, sometimes requiring enucleation to arrest the frequently recurring reflex disturbances in the fellow eye.

In eyes which have been subjected to extraction of the lens without iridectomy, iritis coming on insidiously, the pupil undergoing contraction and becoming cemented to the posterior capsule of the lens, gradual increase of tension is developed, and even in some rheumatic subjects entire recovery may be secured without iridectomy. In such cases I have occasionally practiced divulsion of the sphincter pupillæ muscle, by passing two needles through opposite sides of the cornea into the minute pupillary area, and by separating the needles, first laterally and then vertically, forcibly tear open the posterior capsule, at the same time divulsing the pupil; following this process by the administration of salicylate of sodium and pilocarpin, in alternate doses, and using locally a drop of homatropin solution every half hour for the first day, always restricting the diet to fluids administered with the medicine, as before suggested, during the period of active inflammatory changes.

An illustrative case may be cited from my practice:

A robust woman 80 years of age, with rheumatic diathesis. I extracted senile cataract from the left eye on April 12, 1897. No incident of importance occurred until May 12, when I received a letter from Dr. N. informing me that Mrs. K. was suffering with neuralgia of the left eye. I wrote to him to use no opiate, but to rely on the salicylate of sodium and the homatropin drops for the relief of the pain. She made but slight improvement and returned to the city on May 21. At that time the ocular conjunctiva was injected so much as to render the sclera invisible. The pupil was about 2 millimeters in diameter, and seemed to be about 5 millimeters posterior to the cornea, giving the iris the appearance of a funnel. Tension +2. On May 22, at the Gray Street Infirmary, I practiced divulsion of the sphincter pupillæ, as above described. The anterior chamber promptly filled with blood and as soon as the operation was completed the patient began with 10 grains of salicylate of sodium in a half pint of water, followed two hours later by one-sixteenth of a grain of muriate of pilocarpin in a like quantity of water; in two hours more, another dose of the salicylate, and so on alternately. At the same time a solution of homatropin, 1 grain to 2 drams of distilled water, was instilled every half hour. On May 23, at 8 A.M., the patient's temperature was 99.3 degrees; at the time of the operation it was 99.8 degrees. The pain, which was considerable at the time of operating, has disappeared entirely, and the patient had a fairly good night's rest, awaking occasionally. At 4 P.M. the temperature was 98.2 degrees, tension of the eye about normal, patient entirely comfortable, in a profuse perspiration; anterior chamber beginning to clear up; iris distinctly visible. May 27, 8 A.M., anterior chamber clear; no tension; pupil distinct and round, 5 millimeters in diameter. Patient had a good night's rest. At 6:30 P.M., temperature was 98.2; aqueous chamber of the eye perfectly clear; vessels of the ocular conjunctiva clearing up, with the sclera distinctly visible on the temporal side of the globe. The lids, which had been slightly swollen since the operation, are now entirely normal in appearance. The patient counts fingers at three feet, and says she wants to go home. May 28, at 4 P.M., the sclera shows distinctly; the eye is perfectly comfortable and the patient is anxious to return home. She has no abnormal temperature and desires a more liberal diet. The pilocarpin is discontinued and the salicylate is to be kept up every four hours. Patient may have a little solid food, the fluid nourishment to be continued with each dose of medicine. The homatropin drops are to be continued every four hours. I regard the patient as safely convalescent and anticipate no further trouble. [August 25, 1897 with +11.00 D.; S. = 6 xii+ Snellen.]

I have had many similar experiences, and submit this as my most recent, as affording, perhaps, the most distinctly typical illustration of my point, that constitutional treatment is vastly more important than either iridectomy, or any possible advantage from local medication.

In an eye from which the lens has not been removed, conditions similar to those described in the case of Mrs. K. could not, in my judgment, be overcome without iridectomy. In an aphakial eye abundant experience shows that iridectomy can accomplish no good purpose and is wholly unnecessary, even in the presence of an acute inflammatory glaucoma.

To briefly sum up the points I desire to make, it will be necessary to keep in mind the clinical features. My conclusions briefly stated are as follows:

1. Incipient glaucoma is frequently relieved by improved nutrition, with correction of any existing errors of refraction. It is sometimes relieved by the iodid of potassium, associated with the local use of eserin drops.

2. Mild and insidious cases of inflammatory glaucoma, between paroxysms, may exhibit but little tension. They require iridectomy for the drainage of the engorged vessels during the paroxysm, and constitutional treatment to aid in the elimination of accumulated débris in the tissues.

3. Inflammatory glaucoma, excluding the traumatic cases, should be accepted as a manifestation of rheumatic diathesis; and, while iridectomy should constitute a necessary part of the treatment, it should not be relied upon to the exclusion of the all-important constitutional measures. I do not think iridectomy should ever be done as a prophylactic measure simply.

4. Since iridectomy can accomplish nothing beyond the establishment of drainage for the vessels of the iris and contiguous structures, into the aqueous chamber, the amount of iris removed should be small. The operation should not be repeated in any case. Supplemental constitutional treatment is imperatively demanded in every case where iridectomy is done.

5. In all cases of increased tension of the eye, with peripheral contraction of the field, engorgement of the retinal veins, with or without visible cupping of the disc, constitutional treatment is necessary; and, above all, strict attention to the state of general nutrition and habits of the patient.

SECONDARY GLAUCOMA.

Presented in the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1-4, 1897.

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It is probable that under the title of this paper might be quite correctly classified all classes of inflammatory glaucoma whether acute or chronic. There would then remain a comparatively small, illy defined group of cases of a non-inflammatory type to be designated as simple or primary. Increasing clinical experience has surely taught that the increased tension of the eyeball, the insensitive and steamy cornea, the impairment of peripheral and central vision is a group of symptoms frequently occurring as a resultant of widely diverse pathologic processes. For example, we find this important and interesting symptom-group as a sequel to hemorrhagic retinitis, or to chronic but steadily advancing disease of the uvea in gouty subjects. We meet it again in cases of dislocated lens, or following large rents in the lens capsule caused either by discission operations or by accidental traumatisms, which cause a rapid swelling of its substance and speedily loading of the aqueous with the dissolved cortex: It not infrequently presents itself as a part of the closing scene in the destructive processes which characterize plastic iridocyclitis, fiercely attacking, as they do, the anterior segment of the globe, or in uveitis, which involves usually the entire uveal tract. In all of these widely differing conditions the glaucoma group of symptoms occurs as a sequel, probably never as a primary or initial condition.

I do not propose to discuss these suggestions in all their bearings, but simply to give briefly the history of two cases which illustrate widely diverse types of disease, each leading up finally to the symptom-group we call glaucoma.

Case 1.—Plastic iridocyclitis, annular synechia, and occlusion of pupils. Secondary glaucoma, iridectomy; recovery with moderate vision.

W. W., colored man, aged 32 years, came to the Wills' Eye Hospital, June, 1894. He had suffered from an attack of iritis, probably syphilitic, in 1884, since which time he suffered frequent attacks of pain and redness of the eyes, for which he had received no treatment. His vision had gradually failed until he found it difficult to do his work, that of a farmer. During these years he had suffered from frequent attacks of headache, which had lately become constant, and his vision was often so poor that he could with difficulty find his way about in strange places. O. D. V. large letters at 1 m., but was often much worse. O. S. V. q. p. l.

The following conditions were noted: O. D. pupil small; annular synechia; anterior capsule gray; anterior chamber shallow and angle closed by adherent iris. Tension 1. Slight ciliary injection; no study of fundus possible; contracted field of vision. O. S., same general conditions present, but pupil was in addition occluded by a mass of exudate. The iris was pressed forward and was lying apparently in contact with the cornea, the pupil lying in the apex of a funnel-like depression. The ball was soft. He was placed on mercurial inunctions and eserin; potas. iod. in ascending doses internally. This treatment was maintained until the latter part of September. During this time, although his health improved, he suffered severely from headache and had repeated attacks of increased tension in both eyes. His vision grew rapidly worse, so that he was led to the clinic by his wife, and the candle fields were contracted to a few degrees. He was then admitted to the hospital and a broad iridectomy made upward in both eyes. It was impossible to carry the point of the keratome between the cornea and iris. It was therefore entered well back and penetrated the posterior chamber, being brought forward through the iris into the anterior chamber near the pupillary border, care being exercised to avoid the lens. A quantity of viscid yellowish fluid exuded from the wound. The iris forceps were introduced and seizing the iris at the cut portion near the pupil was gently drawn out of the wound in the reverse order from that ordinarily employed. It was found sufficiently tough to bear traction in the right eye, but very friable in the left, so that it was taken away in fragments, but a large coloboma was secured in each, which fortunately remained open. The eyes healed promptly but continued red and irritable for many weeks. The anterior chambers resumed their normal depth and both balls became soft. The headache promptly disappeared and he was soon able to see his way about the ward.

After six weeks he was discharged from the hospital with sufficient vision to be able to go home without a guide, and became an out-patient. Potas. iod. and bichlorid of mercury alternating with iod. of iron were continued with more or less regularity for a year or more, with local washes, atropin and weak solution of eserin. He has never had any recurrence of headache, or pain or redness of his eyes, and the tension of the balls has steadily improved. He attends the clinic without a guide and is able to resume his work about the farm.

Case 2.—Uveitis, secondary glaucoma.

Sept. 9, 1894, R. W. presented himself at the Wills' Eye

Hospital for treatment. He was suffering from dull headache and photophobia. He related that the left eye became red and painful during the summer of 1894, and had been under the care of his physician for a long time before he observed failing vision in the right. He denied syphilitic infection at any time, but was evidently in ill health and of a so-called strumous diathesis.

The pupils were dilated with atropin prescribed by his physician. The following objective conditions were noted: In O. D. there was some ciliary injection, the epithelial surface of the cornea was normal, but the posterior surface was dotted with numerous gray points which were arranged in a more or less triangular form in the lower part of the membrane of Descemet. The anterior chamber had normal depth, but the aqueous humor was slightly turbid. Viewed through this and the deposit on the cornea, the iris seemed to lack luster and its surface presented an apparently smooth uniform surface. The pupil was dilated; large medium and no synechia were present Only a veiled view of the fundus could be obtained. There were floating vitreous webs, and the nerve borders were lost in the surrounding infiltration of the fundus. T. = n. V. = 6/xii. Field for form normal.

In O. S. there was more pronounced ciliary injection. The cornea was found steamy throughout and at its lower part a large crescentic area extending from the limbus to a point near the horizontal meridian of the cornea, exhibiting deep gray infiltration over which the cornea appeared flattened, but the epithelium was intact.

The anterior chamber had apparently normal depth. The pupil was small, its margins partially adherent to the anterior capsule was gray. V. = 6/xxx, slight minus tension. No satisfactory study of the eye ground could be made.

He received potas. iod. and corros. sub., with tonics, internally and atropia locally. By November 11 the eyes had lost their injection and dread of light and his headache was better, but vision in O. D. had fallen to 6/xv and small slender synechia had formed, and the vitreous degeneration had also advanced. In O. S. V. 6/xlviii; tension and fields were normal in each eye. The atropia was stopped. On November 23 the corneæ were steamy and vision had fallen to 6/ix in each, and severe pain in the eyes came on daily, after noon, for which he received eserin locally and antiperiodic doses of quinin. There were transient attacks of increase of tension, but these would disappear after massage and instillation of eserin, even while waiting in the clinic room. The eserin alone however was not well borne, the eye often doing better under atropin, or the two drugs used alternately. He would have intervals often extending over many days of freedom from pain, during which the haze of the cornea would be absent and the vision would improve; then suddenly, and without known provocation, the symptoms would return with marked increase of tension, which could always be speedily relieved by manipulation and eserin. The case progressed until Feb. 11, 1895, when under an unusually severe exacerbation of acute glaucoma, vision fell to the ability to count fingers with difficulty, corneæ steamy and insensitive, T. +1. Severe pain, anterior chambers normal depth.

He was admitted to the Hospital, placed on mercurial inunction, eserin and light massage. Under this treatment, with extra diet and tonics, the glaucoma rapidly disappeared and vision once more came up, but there was marked cut in the lower temporal fields of both eyes.

On March 6 the eyes were nearly white again, and although there were transient attacks of increased tension, the eyes were free from pain. On March 12, 1895, the fields were found as shown in Fig, 2, *a* and *b*. O. D. V. = fingers only. O. S. V. = 5/lx. A broad iridectomy was then made in the right eye. The recovery was rapid and without reaction, and in four weeks V. = 4/lx. On April 1 an iridectomy was made on the left eye, which also recovered without reaction, and the man was discharged from the hospital on April 15, 1895, with both eyes white, the fields of vision nearly normal. T. —1. O. D. V. = 4/lx. O. S. V. = 4/lx. No satisfactory study of fundus possible, cornea clear, except lower quadrant in the left eye. There was no return at any time of increased tension, but there were repeated attacks of bullous keratitis in both eyes, during the following summer and autumn. The eyes, however, finally became quiet, A year later, March, 1896, V. had fallen to 1-60 in O. D. from commencing opacity of the lens. O. S. had risen to 6/xlviii. In April the right ball was soft, lens opaque, q. p. l. shallow anterior chamber. O. S. V. 6/xlviii and white T. —1. in each eye.

The history of these patients is presented as illustrative of two essentially different groups of patients, both unfortunately very common, but, in the opinion of the writer, of great interest because they shed much light upon the etiology of increased tension. In both cases was witnessed the steady progress of disease culminating in all the signs of inflammatory glaucoma. Increased tension, steamy and sensitive corneæ, and contracted field of vision, all the symptoms being promptly relieved by iridectomy. Nevertheless they present few if any other features in common. In Case 1 was present all the conditions of a plastic iridocyclitis, viz., an acute iritis followed by frequent recurrence of milder or subacute exacerbations, leading to annular synechia, occlusion of the pupils, infiltration of the iris and ciliary body, with the products of inflammation, copious exudate imprisoned behind the iris, which was pressed forward by its accumulation, effectually blocking the spaces of Fontana and thus closing the excretory channels at the angle of the anterior chamber.

In case 2 we have presented a history which differs from case 1 in all essential particulars. The marked tendency to a plastic exudate is absent. Only a thread-like synechia was formed. The onset of the disease was insidious and steadily progressive, attacking first the left eye and after many weeks spreading to the right, where the first manifestation was that of dimness of vision, which proved to be due to an infiltration of the retina and choroid at the posterior pole which blurred the optic nerve margins and veiled the details of the fundus; then degeneration of the vitreous body, shown first by a sand-like deposit and later by webs which as the disease advanced became more dense and floated more and more freely, while the acuity of vision rapidly declined. Then came deposits on the posterior surface of the cornea from the aqueous, which became turbid from the increasing exudate. Not until this stage of the disease was reached was there observed any tendency to increase of tension. At no stage of the affection was the anterior chamber shallow, or the angle closed by the periphery of the iris; at no time was there any arrest of communication between the posterior chamber and the spaces of Fontana. Nevertheless as in case 1, we observed, late in the disease, the increased tension, the steamy and insensitive corneæ, the contracted fields of vision, also relieved by iridectomy never to return.

It is obvious that from the start to finish we have two essentially different types of disease portrayed in the history of these two patients, both, nevertheless, culminating in a common group of symptoms depending upon a mechanical condition which required for its relief the same mechanical interference. Many important and interesting inquiries present themselves for discussion, especially in case 2. First, in both interest and importance, is the nature of the disease in the right eye. Was it idiopathic, or was it secondary to that in the left eye which was first involved, and probably due primarily to an abscess in the lower part of the cornea?

In the second eye the disease certainly manifested itself first in and around the papilla and subsequently spread forward gradually manifesting all the conditions ordinarily present in so-called sympathetic ophthalmia of the serous type.

In case 1 the increase of tension was obviously due to the exudates and fluids imprisoned behind the iris and by the closure of the angle of the anterior chamber. In case 2, it is probable that the anterior excretory channels were clogged by the profuse albuminous exudate. This view seems to find corroboration in the relief which was frequently afforded by massage.

DISCUSSION ON PAPERS OF DRS. REYNOLDS AND RISLEY.

Dr. **Allport** of Chicago—In discussing the paper of my friend, Dr. Reynolds, and while agreeing with him in the general trend of thought contained within its pages, I can not but feel that his loyal, broad and radical nature has been led into certain positive statements that are hardly warranted by the condition of modern ophthalmologic thought. For instance, he utterly surrenders to the rheumatic or gouty theory of glaucoma. I would not be understood as ignoring this important and suspicious etiologic factor, as we are doubtless all firm believers in its potency, but I am not prepared to accept the sweeping assertion that the production of glaucoma is dependent upon two factors, viz., lithemia and traumatism. Time and research may, it is true, verify this bold position, but I am at present unacquainted with scientific data upon which to build such an etiologic structure. The lithemic theory of pathology is now ascendant, not only in ophthalmology, but in other branches of medical science, and like other theories, is in danger of too great popularity; and while not desiring to decry its claims, I would like to be confident that ophthalmology may not be compelled to retrace its steps.

Dr. Reynolds' theory of the cause of benefit derived from iridectomy is unique. He evidently believes that glaucoma is purely a vascular disease and has nothing to do with abnormal secretion or excretion. He may be correct in his views; it is unbecoming in any one to disregard the opinions of others, but surely this is not the pathology entertained by modern ophthalmologists.

Dr. Reynolds attributes the benefit derived from iridectomy to the mere production of a cut iritic surface which permits of vascular drainage through the iritic blood vessels. If this were true, a simple incised wound of the iris would answer the purpose as well; and how can we account for undoubted (*if* infrequent) beneficial results following the operation of sclerotomy? I had supposed that the usefulness of a broad iridectomy in these cases resided chiefly in the tearing away of the obstructive, adherent iritic periphery from the posterior corneal circumference, thus re-establishing the lymphatic circulation coming *from* the ciliary body, zonula, posterior and anterior chambers and going *to* the canal of Schlemm, spaces of Fontana, and onward. If this is true (and it appears to be the present accepted theory), then Dr. Reynolds' idea of a small iridectomy would be at decided variance with it. We all feel that a large broad iridectomy is the proper operation, as the broader the detached base, the more thoroughly will those obstructions be removed which militate against the maintenance of ocular, excretory equilibrium.

Dr. Reynolds says that iridectomy is of itself never a permanent curative agent. He may be right in this view, but I am sure we can all of us point to cases where a timely iridectomy has proven curative, at least for many years. Such results must surely have occurred, many years ago, before the deadly lithemic diathesis was discovered, or iridectomy would not have become so popular with Graefe and his followers.

Dr. Reynolds certainly holds optimistic views concerning the constitutional treatment of glaucoma, and I must congratulate him on the excellent and exceedingly prompt results obtained in his cases, which I can quite readily comprehend, not only because they are vouched for by my friend Reynolds, but because I have seen similar cases in my own practice. I feel, however, that we should be careful not to pronounce cases of glaucomatous tendencies as true glaucoma, and thereby perhaps establish lines of erroneous therapeusis. Still, I have not the slightest doubt that the sensible treatment advocated by Dr. Reynolds is often of the greatest benefit in *functional* glaucoma, before organic changes have occurred, and I believe that in almost all cases such or similar treatment should be thoroughly tried before subjecting the patient to the knife.

Dr. F. C. **Hotz** of Chicago—Dr. Risley's report is an excellent illustration of the futility of the attempts to discover the complex, pathologic symptoms leading up to glaucoma. If we still consider increase of tension as the fundamental symptom, we must necessarily conclude that this may be caused by increased secretion into the eye or diminished excretion from it. We all know that one of the theories is based upon a mechanical obstruction in the iris angle. Among the cases Dr. Risley reported, one illustrates a mechanical impediment interrupting the removal of the fluid from the spaces of Fontana by blocking up the pupil. As to the other theory, which puts the obstruction in the iris angle, I have never been able to make up my mind to accept it and I think all the observations made and reported of old glaucomatous eyes are very deficient in their conclusive evidence, because in all the eyes examined changes had occurred which had nothing to do with the primary condition leading to the increase of tension, and if we especially consider those cases of so-called secondary glaucoma we are more and more led to look upon the ciliary processes producing the increased secretion as the seat of pathologic change leaning to increased tension.

Glaucoma, or increased tension, following needle operations as mentioned by Knapp, and increased tension following traumatisms in the anterior part of the eye, show more or less symptoms of irritation in the ciliary region and in this connection I consider the researches of Treacher Collins of great importance. He thinks that the ciliary processes are glandular structures and if these observations are confirmed, we have a very important discovery, because these glands might easily answer for the increased secretion of serum into the eyeball as the result of an irritative condition.

Dr. **Lucien Howe** of Buffalo—I was very much struck by what a gentleman said to me several years ago, that at regular intervals, two or three times a year, he received articles on glaucoma and he usually noticed that the less the author had of experience, the longer the articles were. I do not mean that the papers we have listened to have not given us a flood of light upon some of the points, but we are too apt to be led into this or that theory that has not a sufficient number of facts upon which to stand. I want to mention two things bearing upon these papers. My attention was called some time ago to the extract of the suprarenal capsule for lessening that kind of injection. It is of decided value. The preparation lasts a very short time unless it be made into tablets, which can be easily prepared. Another point I wish to call attention to is the use of eucain as a local anesthetic, especially where atropin causes the iris to almost disappear. It produces anesthesia and does not produce dilation of the pupil.

Dr. C. A. **Wood** of Chicago—There is one aspect of secondary glaucoma which it would be well to bear in mind, and that is its tendency to assume forms which it is extremely difficult to differentiate from secondary optic nerve atrophy, associated with physiologic cupping of the papillæ. A unilateral cupping, sufficiently deep and large to hide the papillary portions of the retinal vessels, is practically always significant of glaucoma whether the other signs or symptoms of the disease be present or not, but in the bilateral cases, unless there are unequivocal evidences of glaucoma apart from these ophthalmoscopic appearances (continued increased tension, pulsating arteries, shallow anterior chamber, enlarged anterior perforating view, etc.), it is extremely difficult to make a diagnosis. Schweigger pointed this out many years ago and furnished numerous instances where cases of simple progressive atrophy, accompanied by occasional doubtful increased tension, had been operated upon with disastrous results. I have seen a number of these cases of so-called "simple" glaucoma and have reason to suspect that the lack of faith expressed by many writers in the treatment (eserin, sclerotomy, iridectomy, etc.) of simple chronic glaucoma, arises, in some instances, from the fact that these cases partake much more of the character of simple progressive atrophy associated with congenital cupping of the disks, whatever that may mean, than of the symptom group described by Dr. Risley as glaucoma.

Dr. S. S. **Seabetter** of Birmingham—I would like to refer to the statement made a few minutes ago in regard to the frequency of the disease among the colored people, and the attempt to assign a cause for it. I live in a State where two-fifths of the population is colored and I can recall but one or two cases of glaucoma among colored people, while I think of quite a number of cases among the whites, and I hardly think the condition supposed exists.

Dr. C. F. **Clark** of Columbus, Ohio—There is only one point I would like to hear more discussion upon and that is the extent of the iridectomy. It is an old question, but not entirely settled. I have seen a number of cases of good results from very small iridectomy.

Dr. **Leartus Connor** of Detroit—There are some facts bearing on the points raised by Dr. Reynolds that are worthy of consideration. I think it is proven that the conditions that Dr. Reynolds alluded to do make changes generally in the interstitial tissue and in this way interfere with the spaces between the anterior and posterior chambers, and knowing how this is done the remedy for it is easy. The reason I think that iridectomy may do this is that it opens up these spaces; I do not think it is the taking away of the iris at all, but that by removing it the obstruction in these spaces is removed and the fluid can pass through readily. As Dr. Risley mentioned, massage has produced these results. I have seen it myself, and some one has said that electric currents will do the same thing. I think it is desirable to try this also. From my own experience I think we have gone somewhat beyond theory and have some pretty positive evidence upon which to base a rational line of treatment, and in a general way Dr. Reynolds has fairly well stated the methods.

Dr. A. B. **RANDALL** of Philadelphia—A seeming paradox sometimes produces good results. In Risley's case we had a decided amount of reduced tension in the eye operated upon in contrast to the more usual condition between the exacerbations. We should bear in mind the evidence we have to suppose malnutrition to constitute a factor of very great importance, not always secondary, but often provocative. I recall very well a case that in some ways I might call a glaucoma with decreased tension, a case with both eyeballs soft and one absolutely mushy. I made use of iridectomy for the improvement of nutrition and was gratified with a fairly good result which in view of the fact that the other eye went on to a bad result, enables that man to make his living and even to read slightly with an eye that my colleagues strongly urged nothing could be done for it but enucleation. These paradoxes then might properly engage our attention and we may find some underlying interstitial changes that must always be taken into account.

Dr. G. **EDGAR DEAN** of Scranton, Pa.—I have read the paper that Dr. Connor refers to and since reading it I have made use of electricity in some of the cases in which iridectomy was not called for, and I have positively seen a very decided reduction of tension in the short time of ten minutes after the application of electricity by applying the negative pole to the eye and the positive pole to the head. I would call attention to the fact that the negative pole must be placed to the eye because I have seen cases in which there was increased tension produced by placing the positive pole on the eye; the direction of the current is important. The points which Dr. Reynolds brings out in regard to the internal treatment, such as the use of laxatives, Hunyadi water, etc., is also important, and I believe the use of salicylate of sodium and pilocarpin are very important points and should not be neglected.

Dr. **HERMAN KNAPP** of New York—In regard to the theory of glaucoma, that the ciliary body is probably at the bottom of it, is shown not only by cases of increased tension, but in sympathetic ophthalmia as well, but the glaucoma after discission is true experimental glaucoma and the bodies interfered with are the vitreous and ciliary bodies. The lens capsule has nothing to do with it and in those cases the angle is not only left but is increased; the iris is bulging in the center and retracted at the periphery, so there is no blocking of the spaces of Fontana. These two things should be considered.

Dr. D. S. **REYNOLDS** of Louisville—The point that I endeavored to emphasize was the fact that in the inflammatory forms of glaucoma the disease most likely begins in the ciliary muscle. We all know the predilection of the peculiar complex form of disease we call rheumatism for the connective tissues and the ligaments. Another point I wish to emphasize is that those of non-inflammatory development occurring in neurotic people are due in a large majority of cases to malnutrition. The other causes I could not consider in the short time at my disposal.

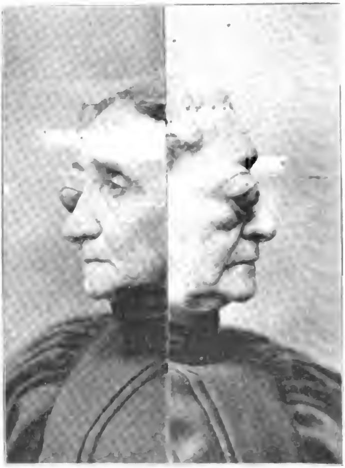
Dr. S. D. **RISLEY** of Philadelphia—There is probaby a distinct relation between the deep anterior chamber in glaucoma following discission operations, as pointed out by Dr. Knapp, and the presence of vitreous which clogs the spaces of Fontana.

ANGIOMA-MYXO-SARCOMA OF THE ORBIT, WITH REPORT OF A CASE.

Presented in the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY S. C. AYRES, M.D.
CINCINNATI, OHIO.

There is no locality of its size in the human body so rich in the various tissues which may serve as the starting point for the development of tumors, both malignant and benign, of the orbit. In it we have bone, periosteum, muscular tissue, fat, fibrous and connective tissue, glands and mucous membrane, and in the capsule of Tenon a serous cavity lined with a serous membrane. There is also the optic nerve and a liberal supply of blood vessels. Among the malignant tumors we find carcinoma, sarcoma, myo-sarcoma, and from the internal ocular tunics, melano-sarcoma and glioma. Among the benign tumors we find angioma, erectile tumors, fibroma, myxoma, lipoma, hydatids, serous and bloody cysts, dermoids, osteomata, papillomata, cysticerci and occasionally enchondroma. There are also tumors of the lachrymal gland and optic nerve, and aneurysms of the ophthalmic artery, both traumatic and idiopathic. The orbit is occasionally involved by disease of the ethmoid, the frontal sinus and the brain. The cavity is also of special interest to the general surgeon in concussions of the brain, fractures of the bone of the skull including the sphenoid or other bones which form the orbit and in cases where intra-orbital hemorrhages occur. Taken all in all it is a cavity well worth the careful study of the oculist as well as the general surgeon. This is my apology for presenting a rather rare form of orbital tumor.



Mrs. M., aged 64 years, was first examined by me in February, 1896. She stated that the tumor in the right orbit was first noticed eighteen years ago. It began in the upper and outer angle in the region of the lachrymal gland. Its development was very slow and painless and it was several years before vision in the eye began to fail. It has been in its present condition three or four years but is becoming more annoying on account of the enormous proptosis of the globe. The tumor fills the upper and outer portion of the orbit pushing the eye down. The proptosis is very marked, the eye being so far out of the orbit that the posterior portion of the globe is almost on a line with the bridge of the nose. The motility of the ocular muscles is unimpaired except by the great stretching of the muscles. The media are clear with the exception of the lens, in the lower portion of which is a small opacity. The optic nerve is atrophied and there is a large posterior staphyloma. The eye still retains slight perception of light. Under the skin of the outer angle of the upper lid can be felt a movable gland which is probably the lachrymal gland completely extruded. On forcibly drawing up the upper lid the outline of the tumor can be seen. It is smooth, rounded, not nodulated, is somewhat elastic but without fluctuation. It has a dense whitish appearance and does not resemble a cyst. The outlines of the tumor can be felt around the orbit, above, inward and below. The lower lid is edematous from the mechanical pressure of the tumor and the globe. The tumor has never given her any pain from its incipiency to the present time. The exposure of the globe to the air has been at times very annoying and is gradually becoming more so. Her physician, Dr. Heady, to whom I am indebted for the case, says her health is very good. She comes of healthy stock and there is no history of cancer in the family.

The operation was done in the following manner: the outer commissure was first severed and then the adhesions around the tumor separated. The attachment of the growth over to the outer portion of the orbital wall. Its removal was not difficult and was accomplished without sacrificing the globe, but was followed by excessive hemorrhage. I then decided to remove the eye and packed the cavity to control the bleeding. The wound healed kindly and there has been no return since.

The tumor was ovoid in shape and somewhat flattened on its posterior surface. It measured 30 mm. in breadth, 30 mm. in length and 20 mm. in thickness. The entire surface was smooth and shining with the exception of that portion which was attached to the bone.

The specimen was hardened and examined by Prof. S. P. Kramer who wrote me as follows: "The examination of the tumor handed me proves to be an angioma-myxo-sarcoma. The section shows a large number of dilated blood vessels with thin walls. The remaining tissue is a combination of sarcomatous cells with a considerable admixture of fibrous connective tissue and a hyaline tissue made up of branching cells and a hyaline or mucoid intercellular substance. These tumors have also been called angio-sarcoma-myomatodes, and have been described by Sattler and others as occurring in the tear gland."

NÆVUS OF EYELID, WITH EXTENSIVE SECONDARY CONJUNCTIVAL INVOLVEMENT.

Presented to the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

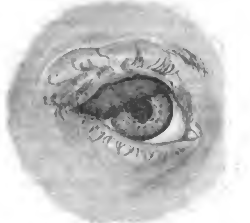
BY G. ORAM RING, A.M., M.D.
OPHTHALMIC SURGEON TO THE EPISCOPAL AND SAMARITAN HOSPITALS, PHILADELPHIA, PA.

I desire to present, somewhat briefly, the history of a case of absorbing interest, which is at present under my professional care, and which by reason of its serious character and great rarity, will form a proper subject for the consideration of the Section.

On Feb. 13, 1897, through the courtesy of my friend, Dr. J. Cardeen Cooper, a female, M. M., aged 18 months, was referred to me for treatment of a nævus of the right upper eyelid. Dr. Cooper has very kindly furnished me with a history of the case, previous to the date of my examination, the child having first come under his observation in June, 1896, five months after birth. At that time there existed on the right upper lid a nævus of the size of a small shin bark, which the mother stated had grown in about two months, as at birth there had existed only a small mark about the size of a pin's head, near the edge of the lid. There was absolutely no conjunctival involvement, nor any apparent evidence of defective vision.

As the nævus continued to grow, it was operated on by one of the general surgeons of our city, by ligation, and at the time of operation was as large as a small English walnut. Five deep sutures were placed at the base of the growth, which then involved the arch of the brow. In one week it sloughed off, leaving a healthy ulcer which healed rapidly without interruption, but with some contractile cicatrization. For three or four weeks the condition remained apparently stationary, then began the protrusion of the mucous membrane, which gradually reached the proportions which existed when I first saw the case, about nine months after the original operation.

On the skin surface of the lid are several purplish red areas of discoloration, with a number of markedly dilated vessels, between and around which the cicatricial area can be distinctly outlined. There is a cicatricial line occupying the outer three-fourths of the brow, a few hairs still remaining at the inner fourth. The lid is showing evidence of cicatricial ectropion. A number of the lashes at the central border have grown upward and external to this area, for about a quarter of an inch, the lashes are wanting. A purplish red mass projects down from the conjunctival surface of the outer three-fourths of the lid, which at its most pendant portion is about 12 millimeters deep. When the lid is everted, the appearance of the inner two-fifths of its conjunctival surface was normal; the external three-fifths somewhat suggesting the appearance of a mass of granulation tissue, which extended well back into, and involved the retrotarsal folds. The line of demarcation between the normal conjunctiva, and the area of secondary nævoid involvement is very sharply outlined. The many dilated vessels were easily recognized, and there was some evidence of extension into the orbital tissue. The accompanying water color sketch, by Miss Margaretta Washington, shows quite accurately the external appearance of the lid, after a slight contraction, the outcome of the operative procedure adopted.



The little patient is an only child. No history of miscarriage is present upon the part of the mother. There seems to be no inherited tendency to syphilis, cancer or tuberculosis, and the child gives evidence of being well nourished. The fundus of the affected eye shows no abnormality, and the condition of the fellow eye is normal. There are no enlarged vessels at any other part of the body, nor any hypertrophy of the pre-auricular or cervical lymphatic glands.

I have operated on the case five times by electrolysis, twice inserting a needle attached to the positive pole, deeply into the growth, and three times with the insertion of needles attached to both poles. There has been some slight contraction, but the result has not been markedly encouraging. I have realized the possible danger of performing an excision, and have questioned the propriety of attempting so radical a measure, in consideration of the extensive involvement of the conjunctiva. After the removal of the growth, a plastic operation will be required.

Dr. Wm. F. Norris, who kindly saw the case in consultation, suggested the continuation of electrolysis, and advised against extirpation, unless permission were granted to enucleate the eyeball, if found necessary.

As of interest in this connection, I desire to refer to three cases of nævus, reported by Mr. Simeon Snell, in the "Transactions of the Ophthalmological Society of the United Kingdom" (1893).

Case 1.—A girl of 20, subject from birth to a nævus of lip and cheek, developed at 18 years of age, a small purplish-red tumor of the plica semilunaris, after the lip growth had been operated on. The caruncle was not involved further than its surface was traversed by a series of enlarged vessels.

Case 2 was a boy 4½ months, in whom a bluish tinge was seen through the integument in the upper angle of the right orbit. The depression of this angle was by a rounded elevation about the size of a bean. In addition to this, over the inner part of the sclerotic in the conjunctiva, was a band of narrow vessels, several coils running toward the cornea. Beginning near the plica semilunaris, this band ran directly outward toward the cornea, and then skirting this, it reached the middle line above, and passed backward over the globe, and was lost under the eyelid deep in the orbit.

Case 3.—An adult female with an angioma of the left conjunctiva. The eyelids on this side were normal, but a rounded swelling was noticed moving with the motions of the globe under the upper lid. It was about the size of an ordinary blackberry, of a deep livid color and passed underneath the upper lid. The greater part of the tumor was disclosed in raising the lid and occupied the middle third of the exposed surface above the cornea. It had apparently existed since childhood, but was completely dissected out under ether.

In the first and second cases, the treatment consisted of repeated applications of ethylate of sodium, cocain being first instilled, and the ethylate carefully applied with a brush, care being taken to confine the application strictly to the part desired to be touched.

In the first case five applications, intervals, one week, removed the growth and in the second, four applications caused it to almost disappear.

DISCUSSION ON PAPERS OF DR. AYRES AND DR. RING.

Dr. S. T. RISLEY of Philadelphia—I have seen no counterpart of the very interesting case presented by Dr. Ayres; I have seen one which aside from the operative interference seems to be a counterpart of the one presented by Dr. Ring. While listening to Dr. Ayres' paper I was impressed by the fact that one must be very much in doubt of the character of an orbital growth in the majority of instances. I have seen no angioma of the orbit, but have seen a large number of orbital growths of one kind or another. I only want to urge in view of this uncertainty, conservative treatment in their management. In two cases that I know of where operative procedures were decided upon, and declined, the growth disappeared under the use of iodid of potassium. I feel, therefore, like recommending conservative treatment first.

The case I referred to as resembling Dr. Ring's occurred in a child only a few weeks old when I first saw it. There was at the upper and outer end of the left eyelid a bluish tumor the size of a split pea, which when the child cried would become still more blue and very much enlarged. It was obviously congenital. When the child was three months old, they had previously declined any operative interference, the growth occupied the outer half of the eyelid and the eyeball was slightly displaced. When the child was lying prone the tumor became very much enlarged, bluish on the surface, and when it cried violently the distension would lead you to pacify it lest it should burst, the tissue seemed so thin. The child died of an intracranial affection and nothing was done to the eye. I think it was congenital and that its origin was in the orbit.

Dr. HERMAN KNAPP of New York—With regard to cavernous tumors in the orbit I have had some little experience. These tumors, I think, should be extirpated. I treated some with electrolysis, but my success was very poor. They can be removed without fear of hemorrhage. If they are in the lid and do not extend very far back into the orbit you can clamp them and have a practically bloodless operation.

There is another group that is more difficult to deal with, but can be dealt with by extirpation; that is, those that are seen in the lid, but extend also deeply in the orbit. They appear usually in the inner canthus and the lid constricts them so that the portion outside, with that inside the orbit, gives them somewhat the resemblance of the old saddle-bags; they are divided into two portions. I remember a case of that kind in a child that came to me twenty-two years ago in New York. I extirpated that tumor by removing only the orbital portion. It was a true cavernous angioma. I introduced the spatula into the orbit, between the eyeball and the tumor and compressed the afferent blood vessels. I had another case of the same kind in Heidelberg and this has always been my course with these tumors, to extirpate that portion that contains the afferent blood vessels and leave the rest to shrink.

Dr. J. E. WEEKS of New York—These tumors have always possessed a great interest for me because of their congenital origin in most every case and because of their tendency to increase rapidly in the young and much more slowly in the old. I have vividly in mind the case of a child that came to me at the age of three months with a small nævus of the left lid and a cavernous development in the deeper structures. The growth was small and I thought to destroy it by electrolysis. This was tried quite thoroughly and some shrinkage took place, but the deeper growth continued to develop and I soon found that method entirely useless. The patient disappeared for a short time and when I saw the case again the eyeball protruded, the cavernous growth extended to the cheek and I asked for a consultation with a general surgeon, who advised that nothing could be done. I have in a number of cases removed them by extirpation and it seems to me that the advice Dr. Knapp gave me when I was with him is good: "Remove those growths as early as possible and remove them thoroughly for they have a sarcomatous nature." If we examine them we find cells in the trabecular spaces that are decidedly sarcomatous. Originating congenitally, the malignancy is extremely slow, but seems to gain as they advance. Nothing should be thought of but their complete removal and if that is done the tendency to return is *nil.*

Dr. G. E. DE SCHWEINITZ of Philadelphia—I saw the case that Dr. Ring has described some time before he did, probably six months, and am interested in hearing his result. I think if Dr. Knapp had examined the case then he would have said it was not one for the operation of excision. I advised the parents, after consultation, to let the growth alone for the present, but also explained the chances of electrolysis. If extension of the growth should manifest itself, an operation was advised. I have no experience with the ethylate of sodium. Snell has highly recommended it, but it would be well to confirm his results.

Dr. S. C. AYRES of Cincinnati—I have had a case a great deal like Dr. Ring's. It was a baby three months old, one of a pair of twins, and very delicate. The tumor was in the lower, outer portion of the right orbit. When the baby cried it would fill up and look as if the skin would burst. The conjunctival vessels seemed to have at times a pulsating appearance, though I do not think it was aneurysm. I tried electrolysis with very satisfactory results; there was a great deal of shrinking of the tumor. The baby looked as if it would die if it lost an ounce of blood and so was allowed to return home, and when it returned in October the tumor had not grown. I then resorted to the method of extirpation. It was impossible to get a clamp to enclose it, but putting one-half of the Snellen ring clamp over the skin I made an opening through the skin and dissected the whole thing out, uniting the wound in the skin with sutures placed deep. I have a photograph of that child when 7 years old and aside from a little scar the whole disease is obliterated.

SURGERY ONE HUNDRED YEARS AGO.

AN HISTORICAL STUDY

BY DR. GEORGE FISCHER.

DEDICATED TO THE GERMAN SURGICAL ASSOCIATION.

TRANSLATED FOR THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

BY CARL H. VON KLEIN, A.M., M.D.

(Continued from p. 34.)

XIX.—DISEASES OF THE URINARY AND GENITAL ORGANS AND OF THE RECTUM.

The *amputation of the penis*, indicated in gangrene and carcinoma, was often performed with success provided that the inguinal glands were not already swollen. The amputation was in most cases made with the ordinary bistoury or a sickle-shaped knife (C. C. von Siebold). If the cancer was limited to the gland, one could cut through the skin and corpora cavernosa with one stroke of the knife; but if it was necessary to amputate close to the symphysis, more of the skin than of the corp. cav. had to be removed, which was greatly preferred (le Dran) because the latter immediately retracted so that the bleeding vessels could not be found. A few first separated the skin with a circular incision, and drew it back, before the corp. cav. were amputated (B. Bell and Warner), which others however considered as unnecessary (Richter). The hemorrhage from the arteries required ligature, since neither styptics nor compression were reliable enough; by the latter method patients were seen to die from loss of blood, two hours after the operation (B. Bell). But the hemorrhage of the fungous corp. cav. could be arrested by moderate pressure, or by sprinkling it with a powder of colophony or gum arabic. In an amputation close to the symphysis the flow of blood was sometimes excessive; in that case the ligature might fail, but compression with agaricus, cold water (Siebold), or the hot iron (Sabatier) accomplished the purpose. In such cases they advised previously inserting a catheter to prevent the contraction of the stump as far as possible, and in order to be able to seize the decussated vessels more readily (Ollenroth). It was also attempted to apply a tourniquet or a small bandage to the penis (C. C. von Siebold). Immediately after the operation, and until the wound was healed, a catheter was introduced, that the urine might not wet the wound, and the orifice of the urethra contract or entirely close. The fear of hemorrhage led Ruysch to the constriction of the penis. He was followed by Bertrandi, Palucci and Heister, who inserted a silver tube into the urethra, and bound a strong packthread around the member. Sabatier sought to perfect this method by first making the incision into the skin and then inserting a cotton cord saturated with nitric acid. The fearful pain must cause every surgeon to shrink from this cruel operation; it was forgotten until von Graefe again returned to it.

On account of the close relation between surgery and obstetrics in the last century, it may be permitted to introduce an operation pertaining to the latter, which made the greatest sensation a hundred years ago. This was *symphyseotomy*. Indeed, Pineau had suggested the operation in the year 1575, and Cl. de la Couruée of Vesaul performed it in 1655 upon a woman who had died in labor; but both were forgotten. Sigault of Paris rediscovered it in 1768 and made the suggestion to the Académie de Chirurgie that instead of the usual deadly Cæsarean operation in case of a small pelvis, the junction of the os pubis, which often yielded in simple births, be separated and the pelvic cavity thus enlarged. Ruffel, who was appointed as commissioner by the Academy to make a report in the matter, expressed himself as unfavorable to it, in consequence of which that body deferred its judgment. There the matter rested for several years. Sigault would not admit that he was in error, although even the elder Baudelocque distinctly opposed him, and at his doctor's promotion he once more defended the operation (1773). The illustrious Peter Camper came to his assistance. Attracted by the new idea he made successful experiments on swine and observed that the os pubis united again, and he found the operation very easy. When Louis, the secretary of the French academy, asked him for his opinion he expressed himself in a letter to von Gesscher in favor of the separation of the os pubis as opposed to the far more dangerous and not absolutely necessary Cæsarean section (1774). On the first of October, 1777, Sigault for the first time performed a symphyseotomy upon a Madame Souchot, in the presence of his friend Alph. Leroy. She had a narrow pelvis, with a two and a half inch conjugate diameter, and had already had very difficult deliveries four times, always bearing dead children. Physicians and surgeons, among them even Levret, were convinced that the woman could not bear a living child without the help of the Cæsarean section. As her fifth confinement approached, Sigault, who had previously suggested symphyseotomy, but in vain, was called and he performed the operation immediately. He cut through the soft parts from somewhat above the os pubis almost to the labia, inserted his finger along the symphysis and separated the ligament and cartilage. At this moment the two parts of the os pubis separated themselves two and a half inches! He then opened the sac and removed a living child. The entire operation lasted scarcely five minutes. On account of defective light he had inadvertently injured the neck of the bladder. In sixteen days the wound of the symphysis was closed, and in forty-seven days the woman could walk about. Sigault immediately reported the operation to the medical faculty of Paris, to which body the woman was presented in December. The mother and child lived; but the former suffered from a vesicovaginal fistula and prolapsus of the vagina and uterus, and her gait was uncertain and difficult. The operation made a powerful impression. The medical faculty took it up with enthusiasm, had Sigault's treatment published and distributed, had a silver medallion with the date of the operation struck in his honor, and conferred a pension of 360 livres upon Madame Souchot because she had permitted the operation. Even from the pulpit this great benefaction which had fallen to the lot of humanity, was proclaimed. In the following year Sigault performed symphyseotomy four times, three of which were successful, when at the same time four Cæsarean sections in Paris resulted fatally. But soon a few ill consequences of the separation of the os pubis were made known; the women died or were left with wearisome infirmities. The number of its opponents increased and for years they contended with the greatest violence over the operation, which had become the question of the day. In the Hôtel Dieu in Paris, many experiments were made on cadavers, from which it was established that the small pelvic measure was enlarged only slightly, and that in order to facilitate the passage of the head, the parts of the os pubis must be separated to such a degree that the posterior articulation must necessarily be lacerated. Sigault was charged with performing the operation when there was no need for it, and it was said that the pelvis of Madame Souchot was not so narrow as he had asserted; it was also doubted if, in his operation, the os pubis had of itself yielded two inches. In Germany, C. C. von Siebold first performed the operation (1778); the child was dead. He was obliged to saw through half of the symphysis, which was ossified (for which purpose Aitken devised the chain saw in 1789), and forcibly separate the os pubis. After a few weeks the woman was cured except a small fistula, and a year later was entirely well; the callus between the severed os pubis could be distinctly felt from the vagina. According to Siebold, symphyseotomy promised to be of use only in one case, when the small pelvic measure was not less than three inches and the head lay forward, and was not unusually large. While Loder and Mohrenheim favored the operation but with limited indications, Richter rejected it entirely, because it did not increase the small pelvic measurement, or did so only at the cost of laceration of the posterior articulation, and altogether was not so free from danger as had been supposed, and resulted in many difficulties. W. Hunter, in England, opposed it and admitted only the single very rare indication when, in case of a large pelvic cavity, the head of the child could not descend so low that it could be reached with the instrument. On the contrary, B. Bell expressed himself very favorably toward it and where only little hope was left he preferred the symphyseotomy to the Cæsarean operation or, indeed, to the use of an instrument. In spite of all the pomp with which this operation had been introduced, in spite of all the endorsements on the part of a few clever men, yet in later years it could never obtain acceptance. Still less success had the so-called pubiotomy of Aitken in Edinburgh (1786), which was never put in practice.

In the treatment of *vesicovaginal fistula* surgeons groped in darkness, for they had turned aside from the only path by which progress was to be attained. Already in the year 1663 Roonhuysen of Amsterdam had made the suggestion to trim the edges of the fistula with a knife or scissors through a speculum, and then unite them by a twisted suture. No one remembered Völter, who (1722) first advised a suture after previously trimming the fistula, and remarked: "This operation, to be sure, will appear to some as strange and difficult, as it is in truth delicate and difficult enough. Nevertheless, I have seen it performed once in the case of a gentlewoman, although it did not succeed." In the main the following treatment was made to suffice. In order to prevent the urine from forcing its way through the fistula into the vagina, a curved catheter was introduced and kept in place by an instrument of Desault. This had the form of a truss whose circle surrounded the pelvic region. Opposite the region of the pubis was placed a plate with a silver staff, to which the catheter could be screwed fast and thus held immovable in the bladder. In order to bring the edges of the fistula nearer together a wick of linen or a bunch of lint shaped like a finger of a glove, covered with elastic gum, was inserted in the vagina. In this way the lower edge of the fistula was brought close to the upper, and the round orifice was changed to a narrow fissure. Desault asserted that he had completely cured old and large fistulæ in this way, even after six months or a year.

In case of *atresia of the vagina* an early operation was necessary, for the menstrual blood might, as Richter said, force its way through the lungs and kidneys. If, as in most cases, the vagina was closed by a simple membrane, a longitudinal or crucial incision sufficed, with the insertion of a plug to prevent a fresh obstruction. But the vagina might be grown together, entirely interwoven by abnormal ligaments, or even completely closed. In all operations the procedure depended chiefly on whether the obstructed part was short or long. In the former case the lancet or a two-edged pharyngotome, with a gradual enlargement by means of wax bougies, sufficed; in other cases Richter made the suggestion that as soon as one felt, in the rectum, behind the symphysis, a sac distended by blood that it be lanced with a trocar, through the rectum. If the mouth of the uterus was closed by a membrane it was opened with a curved trocar; in case of a total symphysis a crucial incision was made.

In *hydrops ovarii*, although the patient might live for twenty years, puncture was the only remedy, and it, as a rule, afforded only a temporary relief, since the sac soon filled again. Often the puncture appeared to accelerate the ulceration of the sac and to precipitate death by exhaustion. In case of a small tumor without much pain an operation was rather avoided. W. Hunter in particular advanced this view; he regarded hydrops ovarii as incurable and guaranteed the longest life to those patients who used the fewest remedies. For the rest, the puncture with a thick trocar was regarded as the best method of operation. Since a relapse was not infrequent a radical cure was also brought into question. For that purpose le Dran advised opening the tumor with an incision four inches long, maintaining a free discharge and making injections. Some successful results were obtained by this method, but many objections were urged against it, as for instance the increased suppuration, exhaustion, etc. As its unsuccessful result, according to Richter, was occasioned by the admission of air, he proposed to introduce a trocar and then a bent tube, allowing the latter to remain. In this manner Ollenroth saved his patients. When Houstoun (1724) after making an incision had successfully removed a large part of the ovary, the actual extirpation of the ovary was proposed by de la Porte and Morand. W. Hunter was thoroughly opposed to it; Theden, Schmalz and Callisen favored it, and the last named considered extirpation as the only saving remedy, in case of increased swelling, although he doubted whether a woman would consent to it early enough. That the human body could endure the operation was known from history, where it is related that a German sow-gelder "in his wrath, opened the sides of his daughter, all too much in love, and removed both ovaries," whereupon her desire for love ceased. Pott also had successfully extirpated both ovaries which lay in inguinal hernias. This operation was not perfected during the last century; in the year 1809 the first extirpation of an ovarian cyst was performed by the American, Ephraim McDowell of Kentucky.

Among the diseases of the rectum *fistula ani* possessed the greatest interest. The investigation and classification of the fistulæ were in the same state as today. A treatment without operation gave promise of success if the fistula was short and broad and the cause easy to remove. In this way J. L. Petit with mercury cured the fistulæ in syphilis. The operation was counseled against, if the fistula caused no special pain and did not grow larger and the constitution was not undermined. Richter also said he had observed the development of a black cataract. As consumption might afterward arise (Dumagie) it was always hazardous to operate upon patients with weak lungs. Pott did not agree with the widely promulgated opinion that a healing should not be attempted in case of cachectic people, because the discharge was salutary for the patients; he said if nature had uses for such suppuration the healing or not healing seldom lay within our power. The treatment of rectal fistula had changed to an extraordinary degree. Every age has had its methods; hot irons, corrosives, injection, enlargement and compression successively prevailed. The operation had become so barbarous that the people had a mortal terror of "fistula cutting." This explains also the fear which Louis XIV. had of an operation for his insignificant rectal fistula; he resolved to allow the operation only after many of his subjects had for years remained uncured by various remedies suggested. His body surgeon, Felix, who had invented the royal bistoury for that purpose, operated upon him successfully in 1687. The incision now became the most popular method and all others retired into the background. Sharp supplied special shears for this purpose. A. Monro, Pott, Savigny and many others devised special knives. Most of these were inapplicable and complicated. Pott's bistoury is sufficiently well known; in Savigny's instrument, one of the most convenient, a pointed blade attached to the side of a slightly curved scalpel, can be projected and drawn back. The operation lost its terror when Pott showed that a simple cut which split the fistula throughout its whole length would suffice, and that the callous surrounding did not need to be cut out as J. L. Petit had recommended. If the inner fistular opening lay so high up that it could not be reached with the finger, then a gorget (Runge of Bremen) was introduced into the rectum, the knife being thereupon inserted and following it into the passage (as in the ordinary instruments of today for the operation on vesico-vaginal fistula and on the ear and mouth cavities, at that time the handle of the gorget was fashioned at an angle so that the hand which grasped it lay to one side and did not obstruct the field of operation). Violent hemorrhages were stopped by cold water, the tampon or hot iron. In the after-treatment, in order to avoid a too hasty closing of the cut, a fine compress of lint or a little linen bandage spread with digestive salve was applied; the plugging up of the wound was considered just as reprehensible as to place nothing at all in it (Pouteau). The ligature known by Hippocrates was replaced by the incision, but was snatched from oblivion by Foubert (1757); P. Camper, Desault and Richter extolled it. For this purpose there was used a thread of hemp, silk, horsehair or a wire of lead or gold, or a gut string. As the ligature caused little pain and no hemorrhage the patient remained free from fever and could go about, and therefore many surgeons preferred it to the cut in spite of the fact that the latter led to quicker healing, especially when the fistular opening was deeply located, in case of chronic diarrhea, in feeble and timid persons and in hospitals, where inflammation prevailed. Only in complicated fistulæ with several openings and callosities was the incision unconditionally necessary. If there were no unusual circumstances Desault used the incision and the ligature interchangeably, often for no other reason than to show his pupils both methods. In 1780 in no Paris hospital were more rectal fistulæ taken for treatment than in the Charité, because there a ligature was used in operating, while in the other hospitals the incision was preferred. Extirpation of the fistula was abandoned.

Hemorrhoids were considered as varicose distensions of the rectal veins, although in most cases an effusion of blood under the inner membrane of the rectum was said to form the sac. They were not operated on unless it was necessary; but the opinion that the discharge was a critical one which removed injurious matter from the body, and that its obstruction was in the highest degree harmful, as Heister believed, was contradicted (B. Bell). In case of violent hemorrhages a silver tube insulated with linen or a piece of gut filled with water was inserted, or a stricture was made whenever possible. If exhaustion from loss of blood followed, an operation was the only trustworthy remedy. There were three methods, incision, splitting and ligature, of which the incision deserved the preference. The empty sac was cut off with shears in such a way that a small part of it remained, which was to cover the wound and further prima intentio and the arrest of the hemorrhage. In this way inflammation, contraction of the intestine and hemorrhage were rarely to be feared. If the hemorrhoids were so high above the sphincter that they could not be brought down through the orifice of the anus, then, according to J. L. Petit, an oval lint-tampon with two strong strings was pushed up past the place where the node was situated. In drawing up the strings the tampon was shortened, became thicker and by virtue of that so pressed the rectum that the node protruded from the anus. The splitting of the skin over the varix and subsequent extirpation of the venal node (J. L. Petit) found but few advocates. On the contrary, in case of large nodes, out of fear of hemmorrhage, the ligature was much extolled (Heister, Sharp, B. Bell), and was discarded by others on account of the severe pain and inflammation (Richter). Eradication by means of the hot iron, known even in the time of Hippocrates, met serious opposition. If the prolapsed node became squeezed then it was returned to its position as quickly as possible and if necessary for that purpose the sphincter was split or the mouth of the anus extended with the speculum. The severe pain produced by the repletion of blood or inflammation the surgeons sought to allay by strict diet, application of cremor tartari and sulphur, leeches, or a puncture with a lancet; B. Bell recommended a salve of nutgalls and, upon Cullen's advice, the internal use of copaiva.

The *atresia ani* exhibited various forms. If, as in most cases, the anus was obstructed by a simple membrane a splitting or a crucial cut and the removal of the flaps sufficed. If, on the contrary, in normal anus, the rectum was obstructed for some little distance by a membrane, a case which was curable only when the place could be reached with the finger, then it was opened only with a pharyngotome. In case of a deformed anus when the rectum ended in a blind sac the operation was so much the more difficult the further back the sac was located from the external membrane, and the result was often fatal. After the insertion of a catheter into the bladder, proceeding carefully, the surgeon sometimes had the good fortune to be able to trace the sac from feeling the fluctuations. If the intestine was lacking there was no other resort than to supply an artificial anus after the methods of Littre or Callisen.

Desault first taught the proper treatment of *strictures of the rectum.* Up to that time little heed was given it and it was known only in isolated notes, while most practitioners gave their chief attention to constitutional defects and gave less thought to local affections. They gave antisyphilitic remedies, produced artificial sores upon the os sacrum and thigh, and indeed, extirpated the diseased spot. Desault recommended the tent as a principal remedy for the removal of stricture and the dispersion of callosities. He smeared it with cerate, daily introduced a thicker tent, and in this way obtained the most successful results.

(To be continued.)

SOCIETY PROCEEDINGS.

Tri-State Medical Society of Alabama, Georgia and Tennessee.

Proceedings of the Ninth Annual Meeting.

The President, Dr. W. F. WESTMORELAND of Atlanta, called the meeting to order and it was opened with prayer by Rev. J. B. Hawthorne.

Gov. ROBERT L. TAYLOR welcomed the society to Nashville in an earnest and pleasing address. The President responded fittingly on behalf of the society.

The President then delivered his annual address:

CARCINOMA OF THE BREAST,

In which he deplored the fact that cases are referred to the surgeon too late for operation. He called especial attention to the importance of early diagnosis. Every tumor of the breast is suspicious. All writers agree that inflammation of the breast predisposes to cancer. Traumatism plays an important part in causation. In his experience, when there is a bad family history, the tumor will return. He called particular attention to Halsted's operation. The greatest infiltration is in the skin next the subpectoral and axillary glands. Cells may be widely scattered early. Carcinoma extends through the vessels. The pectoralis minor should be left until the pectoralis major is excised. Everything that looks suspicious in the axilla should be removed. Nerves should be cut, especially if connected with infiltrated glands. Operation should be complete, even to excising of axillary veins. In a case where a complete operation did not seem necessary there was a return in four months. If half can be saved it will be as good as can be expected. No living man can lose only 6 per cent. if the three years rule is observed. Figures are fallacious. The large area if left to granulate and cicatrize, predisposes to carcinoma. As a rule, he grafts within a week. All cancer patients have a lack of red blood corpuscles, the hemaglobin reduced to 90 per cent. When the hemaglobin is reduced 15 per cent. the patient will die. This accounts for many lost after operation with no apparent cause.

Dr. J. B. COWAN said that it was not an easy matter to clean out the axilla. He had seen Abbey cover half the bare surface by undermining the surrounding skin and stretching it.

Dr. R. M. CUNNINGHAM said that we did not know what caused cancer. It spreads by lymphatics. It can not be diagnosed in the operable stage. All tumors of the breast are suspicious. If in doubt, operate. If the skin is undermined too far it will slough. Cancer is rare in the male negro. Cancer of the breast is rare in the negro. When tissue is broken down we will get no good from operation.

Dr. B. SHERWOOD DUNN of Paris, France, said that he fully concurred with the position of the essayist that the operator ought to remove not only such tissue as gave rise to suspicion, but to go further and remove tissue which he was satisfied to be healthy, for the reason that the line of demarcation can not be readily defined. He felt that clinical experience did not support the favorable statistics reported by most operators, and that operations for carcinoma rarely resulted in permanent cure.

Dr. PAUL F. EVE said that if all cancer cells were removed there would be no recurrence. He removes tissue which seems normal. Before regional infiltration, cancer can be removed; then there will be no return. We are looking to the day when the surgeon will recognize all cancer tissue and remove the same.

In closing the discussion, Dr. WESTMORELAND said that Dr. Abbey today would not try to cover a wound by stretching the skin over it. This is bad practice. In the last year he had a large percentage of cases in negroes, so that Dr. Cunningham's idea, which is also in Warren's "Pathology," is not correct. The axilla can not be cleaned out without removing the pectoralis muscle and cutting the veins which come from the axillary plexus. Drawing up the skin will restrict movements of arm.

Dr. J. B. COWAN, Tullahoma, Tenn., discoursed on the subject of

PSYCHOLOGY,

And said that the subject should be differentiated from mental operations. We ought to know something of this science. We all use it consciously or unconsciously. No man who studies psychology can be a skeptic. All the phenomena we see in the external world are but the result of the co-relation of forces acting on matter properly arranged. He differentiated between the material man, the mental man and the psychologic man.

Dr. G. W. DRAKE said that the differentiation made by the author was correct. We study the relations between body, mind and soul by manifestations. Matter returns to the original condition. Mind and soul remain in an unrecognizable condition until the resurrection.

Dr. J. P. STEWART said that mind from a medical standpoint refers to the mind and is manifested by certain idiosyncrasies, notions, whims, fancies, vagaries, and even manias of our patients. We may by our psychologic influence over certain neurotic patients, restore them to health and happiness by suggestion, hypnotism, mesmerism or Svengalism, get control of their minds by the influence of a stronger mind. He hardly thought that we have much to do with the soul, though the idea of soul and its final end may in some degree cause these psychologic manifestations in our hysteric patients.

Dr. W. FRANK GLENN said he never could understand the triune nature of man. He believed that man's spirit was his *ego*, his immortal part, himself. He believed that he lived in every cell of his body and when death came his spirit simply abandoned the material residence and advanced to higher spheres of existence. He believed there was a spiritual body which was recognized by spirit just as clearly as a physical body was recognized by a material man.

Dr. PAUL F. EVE asked Dr. Glenn, "What is life?"

Dr. GLENN said that he could not define life, but it might be described.

Dr. G. W. DRAKE said life could not be seen, could only be judged by effects. In a paper before the AMERICAN MEDICAL ASSOCIATION he took the ground that the mind does not become insane. The part affected is the brain. So-called mental disorders are not mental but material. The brain is the part which gets out of order. The mind is the power which controls the brain.

Dr. R. M. CUNNINGHAM differed from Dr. Drake that the mind is simply the power that moves the brain. There is as much mystery in cells of liver forming bile, or of the kidney secreting urine, as cells of brain producing phenomena of mind. The power of each is God-given. Mind is a phenomenon of physical action.

Dr. B. SHERWOOD DUNN said that Darwin's theory was built without foundation, as he failed to account for the first cell. The physiologist fails to show what is the incentive that puts in motion the gray matter in the generation of thought.

Dr. COWAN, in closing, said that we have cell activity in vegetable as well as in animal life. We confound mind with soul. The soul uses the mind. Writers make the mistake of not differentiating. Not a triune man, the mind is simply the instrument used by the soul.

Dr. SEALE HARRIS of Union Springs, Ala., read a paper on "The Arrest of Smallpox in the Vesicular Stage," based on the idea that smallpox would stop after the vesicular stage if there was no mixed infection, the idea being to prevent by applying antiseptics to the skin. Quoting from Bryan and Bibb he related cases. In a case seen by the writer the treatment was a success. It prevents pitting, secondary fever, the intolerable itching and fearful stench of the pustular stage.

Dr. R. M. CUNNINGHAM said the pus in smallpox was a secondary infection, but he did not believe the skin could be made antiseptic, though the case reported seemed to show that the treatment had been a success.

Dr. FRANK TRESTER SMITH said that it was not necessary to render the skin aseptic if the number of the germs was reduced sufficiently, their development prevented or retarded.

Dr. J. B. COWAN related a case where a negro with smallpox lay in a brook an hour, with the result that the disease ran a much shorter course than others in the same epidemic.

Dr. Seale Harris, in closing, said that while we might not prevent absolute pus formation, it might be lessened so as to prevent many unpleasant results.

Dr. Llewellyn P. Barbour of Tullahoma, Tenn., read a paper on "The Pathology and Diagnosis of Early Phthisis," including in this term the stage where there is a breaking down of tissue. In some the diagnosis is easy, in others it can be made only by investigating symptoms that seem unimportant. Skill is required to appreciate physical signs, but the clinical symptoms will often make the diagnosis. When the patient says he does not raise anything you may get a little the first thing in the morning. Bacilli may not be found in an undoubted case. Hemoptysis is almost certainly due to tuberculosis. Pleuritic pains are characteristic of phthisis; may be absent, as may also increase of temperature. Absence of temperature indicates slow advancement or arrest. Take temperature every two hours, ten to twelve days. If increase is two degrees with exercise, it is probably phthisis.

Dr. Paul Paquin said that the basis of tuberculosis was a battle between the tubercle bacilli and the cells in which they are lodged. The disease may exist a long time before the bacilli are expelled, hence the importance of early diagnosis. This is not so difficult. Early clearing of the throat is important. An important factor is serous pneumonia. Temperature is important, rarely above 101 degrees. This comes late when we have a mixed infection. Malaria may coexist. Look for plasmodium.

Dr. R. M. Cunningham insisted on importance of early diagnosis, which may be made from clinical signs alone. Bacilli may be in sputum of the healthy. The altered ratio between pulse and temperature is important. Pulse is faster than for temperature. Physical signs show lesions which may not be tubercular. There may be a tubercular nidus with no physical signs. The crepitant râle in apex, unilateral, is diagnostic of tuberculosis. Many cases are treated for malaria, dyspepsia, etc. His postmortems showed tubercular matter fenced off with connective tissue capsule.

Dr. B. Sherwood Dunn related experiments where matter taken from the postnasal space in 1,400 cases, showed tubercle bacilli in 856. Many carry bacilli which never develop.

Dr. Hazle Padgett emphasized the importance of the slight rise of temperature (100.5 or 101) with perhaps no cough; slight anemia. Examine heart, urine and lungs. An early change in the vesicular murmur is important; compare with other side.

Dr. Andrew Boyd thought that not enough attention was paid to the minute clinical history, that this is lost sight of by going off to the unknown too much. The microscope is the *sine qua non*, but the subjective symptoms come first, hemoptysis, the pulse (out of all proportion to the temperature), the general malaise, dyspnea, loss of appetite, etc. These come first, then the physical signs, crepitant râle in apex, followed by active physical signs. To sum up, he thought the subjective signs were our first guide, then objective; the physical signs and microscope to dispel all doubts.

Dr. W. F. Westmoreland did not think tuberculosis always began in the apex, but was there easiest found. Tubercular skin troubles have increased in his clinics in the last few years, perhaps ten times. He disagreed as to the crepitant râle, which is always associated with pleuritis.

Dr. Barbour thought the first lesions were at the apex and pleuritic frictions tubercular as a rule. All can not be expert in physical diagnosis, but all can make diagnosis from signs. The majority get well. Bacilli in sputum sometimes precede physical signs. A weak heart may predispose to tuberculosis. Tuberculin may be used by an expert to clear up diagnosis.

Dr Paul Paquin of St. Louis read a paper on

SEROTHERAPY IN TUBERCULOSIS.

The use of serums, nature's remedies, seems to promise much, as all other remedies have failed. Tuberculosis is generally a mixed infection. With bacilli we find other germs. The nature of the mixed infection should be determined by the microscope. This is as important as the use of the microscope in the early stage. There is no one treatment applicable to all cases. Treatment should be combined. In mixed infection the serum should be prepared to meet the case. Hygienic measures should be employed, climate in certain cases; altitude is not of much importance, the benefit being due to the presence of ozone. Climate is often tried too late or may remain too short a time. Hydrotherapy is often beneficial by stimulating circulation; also massage. In dieting, animal food is best; cream better than cod liver oil; whisky and tobacco contraindicated.

Dr. L. P. Barbour said that climate was not a specific, only an assistant. If better in summer send to a warm climate, otherwise to a cold. Ozone is not a specific. Baker's experiments tend to show that it is harmful. Send to climate least irritating (from dust, etc.). There is no specific. We must not rely on any one thing, but individualize cases.

Dr. R. M. Cunningham called attention to the difference between tuberculosis and diphtheria. The former tends to get well by cicatrization, by obsolescence, by discharge; not analogous to typhoid or diphtheria, which are self-limited, hence serum treatment is not analogous.

Dr. L. B. Graddy related a case which steadily got worse under Koch's tuberculin when first introduced in Berlin. With climate and other treatment it matters not if a little antitoxin is injected. He does not believe that there ever has been a case of tuberculosis of the lungs cured. In one case diagnosed as consumption the symptoms disappeared after cauterizing the uvula.

Dr. J. A. Witherspoon said that this is an infectious disease, but does not have a period of invasion, no incubation; if self-limited the limit is the grave. He believes in serotherapy and would not say that none ever got well, but would say that none got well except by the inherent power of resistance. He has absolutely no confidence in serum treatment of tuberculosis. These gentlemen get good results: 1. From the fact that some of the cases were not tuberculosis. 2. To the hygienic and other measures is due cure. The bacillus may be found without tuberculosis.

Dr. W. F. Westmoreland said that the idea that tuberculosis could not be cured should not be allowed to go unchallenged. Wherever the diseased area could be removed the disease could be cured. In view of the statistics there can be no doubt of the good results from these serums. Climate acts by giving rest to the lungs.

Dr. L. P. Barbour claimed that good institutional treatment gave about the same results as climate.

Dr. J. A. Witherspoon thought it doubtful if because a man got better in an institution and remained in good condition for a long time and finally succumbed to the disease that we should say he was cured and again acquired the disease.

Dr. L. B. Graddy said that he thought that there had never been any cured. He could even say that some had gotten well. Many had improved and might live to old age, but bacilli would still be found in their lungs.

Dr. Paquin said that he had been misunderstood. He had not used the word cure. Had reported the cases as he had found them. Tuberculin is not a serum, but the opposite. Tuberculosis and diphtheria are not biologically similar and may require different treatment. His cases were not under favorable surroundings, were not picked. The methods were open, any physician could visit the laboratory.

Dr. Hazle Padgett of Columbia, Tenn., read a paper on "The Causes, Diagnosis and Treatment of Valvular Disease." As causes he especially mentioned acute rheumatism, Bright's disease, violent muscular effort. Diagnosis is by timing murmurs, systolic, diastolic and presystolic. Obscure murmurs may be determined in the horizontal position. Important in life insurance. Exercise may bring out murmur, also forced inspiration, then forced expiration, then suspend respiration. The future of the patient should not be darkened by telling him he has heart disease. Tell some one who is interested in the patient. Many will live years. Aortic stenosis is most dangerous, mitral stenosis akin to it.

Dr. R. M. Cunningham of Birmingham, Ala., read a paper on "The Relation of the Cause to the Immediate and Remote Results and Associated Lesions of Fractures," in which he gave a study of fractures based on mechanical principles showing that bending, compression and torsion are the usual means of fracture, the lesion in bones, in surrounding tissue and in viscera. In indirect violence injury to the soft parts is less than in direct. We are sometimes deceived in the amount of violence and consequent injury, and prognosis should always be guarded.

Dr. Geo. S. Brown said that the amount of violence is the greatest factor in the prognosis, but when it is less than enough to cause total destruction of the circulation it is only so as the cause of the infection which is itself the most important determining factor. Mr. Lister, walking his wards with his class twenty years ago, said: "Gentlemen, I have often noticed that bad contusions not complicated by lesions of the skin nearly always do well, those with lesions of the skin have trouble. I am not able to explain this, but the one who does will make his name immortal." He afterward himself explained it and his name is immortal.

Dr. Hazle Padgett related a case bearing on some points in the essay. A man was hit on the head with a mail pouch, he became unconscious and died in five hours. Postmortem showed no evidence of external violence, a hematoma of the right temporal region, right temporal and parietal bone fractures; but no depression. The fracture in the temporal opened internally; a ruptured right meningeal clot about three and one-half by two and one-half, by one-half inches; on the opposite side no fracture but a ruptured pial vessel clot, thin, but about two and one-half inches long by one and one-half inches wide. In the cortex of the right posterior cerebral lobe was a small hemorrhage. Here is an illustrative case showing extensive internal injuries without external evidence.

Dr. J. B. MURFREE said: "In the treatment of fractures the cause of the injury is too little considered. This must necessarily play an important part in the treatment. A fracture produced by great external violence must be treated with great care, and be so dressed as to be inspected, while one produced by muscular contraction may be put up in plaster-of-paris and never inspected until the fracture has united. As stated, a simple fracture will do better than a compound one, but in every fracture, whether simple, compound or comminuted, we must duly consider the force that breaks the bone. I remember a case of fracture of the leg produced by external violence that was bandaged and splinted. The limb swelled and the pressure of the bandage being painful the bandage was cut. The leg mortified and had to be amputated and the doctor was sued for malpractice. We must duly consider the damage done to the soft parts as well as to the bone. A case came under my charge where a leg was mashed on the railroad. An eminent surgeon amputated at the knee joint, but when the first dressing was removed the soft tissues were found to be mortified and in time all the flaps sloughed, leaving the condyles of the femur projecting beyond the soft parts, to be covered by granulation after months of suffering. So we must duly consider the injury done the soft parts from the cause producing the fracture. The force that breaks the bone and its mode of application must be considered in the treatment of every fracture."

Dr. J. P. STEWART related the case of a fracture of the leg from the fall of a tent pole. The patient died in ten hours. Postmortem showed rupture of liver and bruising of internal organs. The force should be taken into consideration.

Dr. CUNNINGHAM related a case, in closing, where there was much injury to the leg and he wanted to amputate but the patient refused. He prognosed death, but the patient promptly recovered. The case that inspired the paper was that of a negro with a fracture into the knee joint in which there was a slough and suppuration, although the skin was not broken. The germs must have been forced through the unbroken skin, hence the importance of rendering the surface aseptic before applying splint.

Dr. J. M. MATHEWS of Louisville, Ky., addressed the Society on "Cancer of the Rectum." He said, in part, that while extirpation was the proper treatment still the application was limited. Authors claim that cases live four, five and seven years; he has a case in Louisville with cancer eight years. The rectum is divided into upper, lower and middle; lower, one and one-half inch. This may be removed. In the middle third it will surely return. The upper third involves the sigmoid flexure. This may be cut out and anastomosis made, but why? He would limit operation to the lower one and one-half inches. Pain is not always present. He doubts if operation prolongs life. Cancer patients live five to eight years. There is an allied condition which can be diagnosed only by an expert of years' experience. The only condition in cancer is to let them down easily with opium.

Dr. J. B. COWAN commended the paper for its conservatism. A few years ago every one was for heroic surgery. Now the pendulum is swinging the other way.

Dr. W. E. B. DAVIS endorsed the position taken by Dr. Mathews and thought life might be prolonged if an operation was performed in the early stage. The difficulty was that most cases came to the surgeon too late, just as cases of cancer of the uterus came after the disease has extended beyond the reach of the knife.

Dr. GEORGE S. BROWN thought that it was the exception for surgeons to operate for brilliancy rather than for the good of the patient, and those who did injured themselves.

Dr. GEORGE S. BROWN of Birmingham, Ala., read a paper on "Metatarsalgia or Morton's Painful Toe." This is an affection of the fourth metatarsal phalangeal joint. The pain is sometimes beyond comprehension. Morton suggested excision of the joint. One symptom is necessity of removing the shoe. The ligaments are so stretched as to allow the bone to press against the nerves. He thinks thin-soled shoes may be a factor in causation. Mild cases may be relieved by a stiff sole. In severe cases the joint should be excised.

Dr. J. A. GOGGANS of Alexander City, Ala., made some remarks on

APPENDICITIS,

relating fourteen cases with thirteen recoveries and one death. He thought that we were a long way from knowing the true primary cause of appendicitis; some thought it due to interference with drainage of the tube. This occurred in most cases and accounted for the pain radiating from the solar plexus, but did not account for the appendicular inflammation. Mechanical obstruction could cause pain and fatal perforation, but foreign bodies were rarely found in a diseased appendix. Fitz, in 300 cases, had found concretions in 5 per cent. Dr. Goggans had found no strictly foreign bodies. Even if found it does not show that they caused the inflammation. He thought that there was something still further to be learned about the etiology, that there is a special germ which causes the disease, that the contents of the intestine became concretions and they as well as foreign bodies became lodged in the tube on account of lessened intestinal secretion and contractility of the muscular walls of the intestine and appendix. When the attack was mild (slight rise of pulse, temperature and respiration), he waited for second attack before advising removal of appendix. If at end of two weeks there was tenderness he advised operation. In that class of cases the mortality was not more than 1 per cent. The more severe cases demand immediate operation unless death is already inevitable from sepsis. Some cases might have the operation under local anesthesia more safely.

Dr. M. C. MCGANNON said that many cases had died of appendicitis unrecognized. The mortality in early operation is 1 per cent.; very dangerous in children. Death is the rule in general peritonitis. He does not believe in waiting in the young; may wait in adults. Not necessary to operate in all cases, but it is a surgical case.

Dr. W. D. HAGGARD Jr. gave an abstract of his paper on the "Treatment of the Stump in Appendicitis." He said that in the last six weeks six patients had lost their lives from appendicitis due, he thought, to deferred operation. Operation should be done as soon as diagnosis is made. He related cases. In one with a temperature of 99, pulse 98, he found a perforation. He described the technique of Deaver of Philadelphia, cutting away the mucosa, amputating the appendix and closing with Lembert's suture.

Dr. W. E. B. DAVIS said that mild cases need not be operated on at the first attack, but all should be operated on who have a second attack. In all cases where this is severe the patient should be subjected to operation without delay, for if such cases are not operated on in twenty-four hours a fatal peritonitis may develop. There are many cases which the surgeon will see after the patient has been ill for two or three days in which it is impossible to know whether the case is one of local or general peritonitis.

Dr. H. HORACE GRANT looked upon the discussion as not merely one of methods, but one that involved the security of human life; too important to dispute about contributory details, definite data must be obtained. If ever the electric rays are so perfected as to show the picture of what lies hidden beneath the tissues in cases of inflamed appendix, the question of when to operate will vex us no longer. Until then some common agreement will greatly help. Other things being equal, *i. e.*, a safe place to operate and a competent operator, the mortality will be less if all cases are cut, but these desirable conditions are only occasionally present. He suggested three rules for guidance:

1. In all cases of fulminating appendicitis, difficult to picture but easily recognized, the operation is imperative at the earliest possible moment, before general peritonitis develops.
2. In mild or moderate cases in which operation is declined or hesitated about, or where conveniences for safety are not at hand, we are justified in waiting thirty-six to forty-eight hours to watch the course of the disease. It is to be understood that while such a course is not always safe, even when it appears to be, yet the danger does not justify an imperative demand nor an incompetent operator.
3. In all cases of moderate severity in which distinct, genuine improvement is not manifest after forty-eight hours, the operation should be demanded.

Dr. J. A. WITHERSPOON asked Dr. Grant whether we should use opium and whether we should use a purge?

Dr. Grant replied that the purge was indicated, the opium was not; it would mask the symptoms.

Dr. LOUIS FRANK believes that as soon as the case is diagnosed it becomes surgical and is no longer medical. Some cases should not be operated on. The desperate cases should be avoided, as they bring surgery into disrepute and make others loth to submit to operation. Symptoms may be relieved by salines, but the pathologic cause remains. Mortality would be less if operation was as soon as diagnosed.

Dr. GOGGANS closed the discussion by saying that he would treat medicinally mild first attacks; if the second, would operate. Purge aids antiphlogistically by unloading veins.

Dr. Haggard said that the diagnosis was much easier now than formerly. He would operate first and give salines afterward. Opiates should never be given in early cases. Operations delayed and hopeless cases bring surgery into disrepute.

(*To be continued.*)

PRACTICAL NOTES.

An Antifat Diet for Pregnant Women with Deformed Pelvis.—Leusser has been reviving Prochownick's suggestions to secure small children by limiting the patient to a nutritious but antifat diet the last two months, and reports in the *Münch. Med. Woch.* (No. 30) his success, especially marked in one case (conj. diag. 10.5), who had borne eight children, weighing on an average 5,500 grams, labor lasting from two to five days. The result was the spontaneous, easy birth of a child weighing 2,900 grams after two hours' labor.—*Wien. klin. Woch.*, November 25.

Treatment of Surgical Tuberculosis with Gum Resin Euphorbium.—Penières reports the successful treatment of tuberculosis of the ganglia of the neck, of the skin, bones and articulations, with subcutaneous injections of euphorbium in glycerinated water in the proportion of 1 to 4,000. The dose of 1 c.c. is well tolerated even by children, and is increased for adults. The slow effect must not be hastened by too frequent injections; one a week or fortnight is enough. The cure is completed without induration of the tissues. Nineteen cases.

An Office Use for Peroxid of Hydrogen.—A good thing for the physician to have constantly on hand in his office is peroxid of hydrogen or hydrozone. Its properties as a powerful antiseptic are well known. A new suggestion as to its use is for the keeping clean and ready of glassware, such as irrigators, test-tubes, measures, etc., while not in use; one part to four or five of clean water is sufficient; some is left in the vessel until the latter is needed, when it is to be shaken, the solution thrown out, the container rinsed with clear water, giving assurance of its thorough cleanliness.—*The Polyclinic.*

The Absorbing Power of the Bladder.—It is announced from Professor v. Merring's clinic that comprehensive experiments with dogs have demonstrated that the rapidity depends upon the concentration to some extent, and that certain substances are much more readily absorbed than others. Seventy per cent. of a 1 per cent. solution of carbolic acid is absorbed in two hours, and the entire amount in fourteen. Almost 40 per cent. of a 1 per cent. solution of cocain is absorbed in three to five hours, showing the necessity of care in the use of these medicaments. Alcohol, boric acid and quinin were also readily absorbed, but morphin scarcely at all.—*Wien. klin. Woch.*, November 25.

Modern Management of Diphtheria and Croup Cases.—This is the title of a comprehensive lecture of Dr. Augustus Caille, professor of Pediatrics at the New York Post-Graduate School of Medicine. In speaking of fever he says, that the high temperature can be reduced by cold and luke-warm sponge and tub baths; to give antipyretic drugs regularly every two or three hours is very bad practice, but one or two doses in twenty-four hours, particularly at night, are serviceable. Among the drugs mentioned in this connection is lactophenin, which Dr. Caille recommends in 3 to 10 grain doses with ½ grain caffein. Quinin, he says, should never be given as an antipyretic in any but malarial disease.—*The Post-Graduate.*

Glandulen Tablets.—An English firm has produced tablets of glandulen, an animal product prepared in tablet form for medicinal use by Dr. Hofmann of Meeraue, Saxony. Glandulen is obtained from the bronchial glands of freshly killed sheep. Having been washed with alcohol, freed from fat, and dried *in vacuo* at a low temperature, the glands are reduced to powder, to which sugar of milk is added in such proportion that when compressed into tablets weighing 0.25 gram (3.5 grains), each tablet is equivalent to 0.25 gram (3.5 grains) of the fresh glandular substance. One tablet is given three times a day at first, the dose being gradually increased to five tablets three times daily. Glandulen is stated to have been tried in cases of tuberculosis of the lungs.

The Use of Scopolamin Among the Insane.—Dr. S. Tomasini has employed the hydrobromate and sulphate with equal results. They are injected subcutaneously in dose of from one two-hundred and fiftieth to one sixty-fourth of a grain. Sleep was readily induced, especially in women, in from two to three minutes. The injections are not painful, nor do they give rise to local reaction nor to general excitation. The pulse is regular, but more frequent. There is marked dilatation of the pupils. The sleep is quiet, resembling the physiologic. There are no disturbances nor unpleasant symptoms, as nausea. In maniacal cases and periodic insanity it is a remarkable sedative. Habituation is easily obtained and the dose must be rapidly increased.—*Riforma Medica.*

The Alleged Accidental Discovery of the Value of Hydrochloric Acid in Sciatica.—According to an article in the *Semaine Médicale*, a patient discovered for himself a successful treatment for sciatica, a disease from which he had suffered for several years. He had been under treatment in an Algerian hospital by means of hypodermic injections of salt and water, but without much success. After he had left he bethought him that perhaps the salt was not strong enough and that a stronger preparation of salt might be more successful. He therefore procured some "spirit of salt" (hydrochloric acid) and painted it on the skin, getting rid of his long-standing trouble in a few days. Having occasion shortly afterward to attend the hospital for some other affection, he confided in Dr. Bourlier, professor of therapeutics, how he had managed to get rid of his sciatica. This gentleman thought the plan worthy of trial and employed it in several cases with invariable success. He then told his son, Dr. Maurice Bourlier, who was house physician, and he treated a number of cases with great satisfaction to himself and to his patients. A thesis has recently been published on the subject by Dr. C. Gennatas of Montpelier, on the basis of a dozen cases of neuralgia of the sciatic nerve, all of which were completely relieved by this means. The procedure is simple enough. Half an ounce of strong hydrochloric acid is put in a small cup and a brush is dipped in it and applied over the painful part of the nerve, three or four coats being painted on. The limb is then enveloped in a cotton-wool dressing. Of course the application causes a somewhat severe smarting sensation, but this is quite bearable. A few minutes afterward the skin becomes reddened and hot, and sometimes bullæ are formed which fill with fluid. These, even if they occur, disappear in two or three days. Usually the patient feels better even after a single sitting. The application can be repeated in from twenty-four to forty-eight hours, but not again for several days for fear of producing sloughs. Of course, too, where there are bullæ, they must be avoided in subsequent applications. No serious inconvenience is caused by the hydrochloric acid, such as was experienced when a similar procedure was attempted some years ago by Dr. Legroux with strong sulphuric acid, which was found to be liable to cause extensive sloughing of the skin. The twelve patients referred to were all reported as cured in from three to five sittings, extending over from a week to twenty-five days.

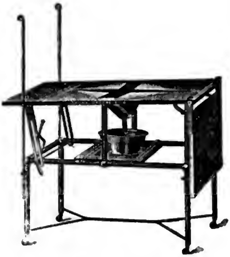
NEW INSTRUMENTS.

A NEW OPERATING TABLE.

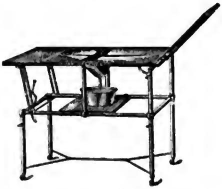
BY J. F. BALDWIN, M.D., PROFESSOR OF GYNECOLOGY, OHIO MEDICAL UNIVERSITY, ETC.
COLUMBUS, OHIO.

Some years ago, not being satisfied with any of the operating tables in the market, I had one made of my own devising, which has worked so satisfactorily and been so highly spoken of by my gynecologic friends who have seen it in use, that I have concluded to bring it to the attention of the profession.

The ordinary operating table, if arranged to obtain the Trendelenburg position, is usually quite complicated. The more or less complicated machinery necessary to change the position of the patient requires for its manipulation the attention of the operator himself or of an assistant, and not infrequently there is an uncomfortable hitch in its working. A more serious objection, however, is that if the patient is at a comfortable height for the operator when in the horizontal position, the field of operation is carried completely out of reach when the patient is changed to the Trendelenburg; or if the position is comfortable when the patient is elevated, the reverse is the case when she is horizontal. I have been in a number of operating rooms where this difficulty was only overcome by the use of soap boxes for the operator and his assistants to stand upon.



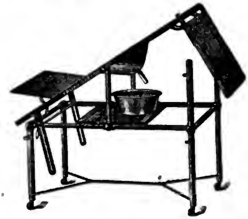
My first table was made in wood. It was used by myself and also my colleagues, Drs. Reed and Means. After a trial of a couple of years, our experience resulted in finding a few points for improvement. Some two years ago, therefore, I had the table reconstructed in iron and glass, with the suggested improvements added. My friends, Drs. R. B. Hall of Cincinnati, and A. F. House of Cleveland, who had seen the table in its original form, at once ordered duplicates in its new form for their own use, and both have repeatedly expressed themselves as highly pleased with it. I soon became dissatisfied with the glass top and replaced it with metal plates. The latter have left nothing more to be desired.



The construction of the table is perfectly simple, as it is entirely without ratchet, cog, pinion, crank, or other complicated mechanism, while securing all the advantages found in the Boldt, Edebohls, Cleveland and similar patterns. The field of operation is at the same level whether the patient is horizontal or in the Trendelenburg position. It consists of a solid wrought iron frame supporting a hinged top, twenty by seventy-two inches, that can be shortened by uncoupling a foot section, reducing the length to fifty-four inches. Its usual height when level is thirty-six inches, although this can be changed to suit purchasers.

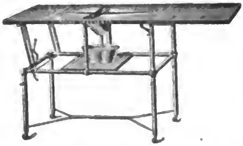
A principal feature of the table is the hinging of the top in such a manner that with a patient in the recumbent position, the whole is so evenly balanced that the anesthetist with a single hand may depress the head and elevate the hips into the Trendelenburg position.

Any degree of obliquity may be maintained by means of two slotted bars through which a screw rod and crank project, with such an adjustment that a slight turn of the latter will lock the table in any desired position. The main portion of the table top drains to the center into the receptacle placed upon a sliding plate resting in the table frame. That portion of the top upon which the head and neck of the patient rest is hinged in such a manner that when the table is depressed, by means of a curved upright this may be elevated so that the head rests in a horizontal plane. The foot piece is arranged with a series of slots by means of which the lower limbs may be securely fastened during the progress of an operation.



By means of spring bolts and suitable slots, the foot piece may be elevated as shown in the figure, in which position the table is adapted for operations on the head and neck. With this arrangement almost any desired position may now be obtained with this table.

Two crutches are provided and arranged to be attached to either end of the table. By this means what is ordinarily termed the head of the table, may be employed for perineum and similar operations, in which case that end of the table may be slightly depressed, thus securing good drainage. Generally speaking this forms the best end of the table for gynecologic examinations, uterine, rectal and similar operations, because the table top projects beyond the frame, thus allowing more space for the knees of the operator if in a sitting posture. The table is securely braced, strongly built and mounted on casters with rubber tires. It is finished in white enamel. Being without complicated mechanism there is little to get out of order. As it is simple in construction, it may easily be cleaned. Even the trough and spout are removable. The joints instead of being painted are either plated or bronzed, thus avoiding the danger to an enamel coat that might be caused by the friction in moving. The positions are simple, all being possible without removal of patient from the table.



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SATURDAY, JANUARY 8, 1898.

THE NEW NAVY IN ITS MEDICAL ASPECT.

The physician who would be considered a well-informed man in his community, can not be indifferent to public affairs, national and international, State and municipal, and a good citizen takes part in discussing the progress of the Nation among other nations. In the absence of war, the several countries of the civilized world are devoting themselves to the preparation for war, and the engrossing topic today, in our own land as in others, is the creation of what is called a new Navy, and naturally the medical aspect of this new establishment is that which particularly engages the medical man. Hence, the report of the Acting Chief of the Bureau of Medicine and Surgery to the Secretary of the Navy will be read by him to whom battle-ships, citadels, redoubts, superstructures, minor turrets and the like are unintelligible terms. It is gratifying to learn that the Naval Hospitals "are now placed on an equal footing with our leading civil establishments in all that pertains to modern medical and surgical requirements and the necessity of making suitable provision for the equipment of a Naval Hospital Corps becomes more urgent." It has long been known to the profession that the naval medical officer has had to labor without adequate support and that the Directors of Naval Hospitals have only been able to keep them in proper sanitary condition and clinical efficiency by retaining convalescents as nurses and attendants, thus vitiating the scientific value of their returns as to duration of illness and treatment; and commanding officers have complained loudly of this diversion of enlisted sailors and marines from their legitimate duties, yet the medical officer has had no alternative but to use the means at hand, employing the convalescent, in the absence of others, to care for his sick ship-mates, meanwhile clamoring for an independent corps of qualified attendants, similar to that which now forms part of the Army.

Another grievance of the medical officer of the old Navy, which appears to have been perpetuated in the new, was the location of the *sick-bay* or ship's hospital at the extreme forward end of the berth-deck at the water line, where it was exposed to the impact of the sea upon the bow when under way, to the odors of the paint- and oil-rooms opening into it, to the noise of chain-cables and hoisting-engines in port, and to the intrusion of others than the sick and their attendants. In the construction of the new Navy it is incredible that the Chief of the Medical Bureau has had no say as to the location of the hospital, nor has he been consulted as a sanitary expert about the proper air-space of apartments, and their habitableness. Ships have been constructed and their defects first come to his notice through the reports of individual medical officers ordered to them, and these are embraced in his own annual report to the Secretary of the Navy; and as was to be expected from the lack of professional expert advice at the outset, how lamentable has been the failure to provide adequately for the care of the sick and especially of those disabled in action!

Brief extracts from some of these reports from medical officers afloat may be interesting to professional readers:

Surgeon GEORGE P. BRADLEY, senior medical officer on board the first class battle-ship *Indiana*, says:

"The sick-bay is very small for the size of the vessel and number of men—not more than three persons, exclusive of the bay men, can be properly berthed in it. On the whole the facilities for the proper care of the sick or wounded are very inadequate, particularly as regards space, and call for extension in the construction of future ships. The very situation of the sick-bay, immediately abaft the *head* (latrine) is objectionable, depending on perfect tightness of a bulkhead for protection against the gravest dangers. If certain alterations were made, room for the sick-bay might be found on the main-deck within the superstructure. The sick-quarters used in time of peace, as well as the greater part of the crew-spaces, are entirely unavailable [for the care of the wounded in battle], being entirely unprotected by any armor—the only parts below the water are the orlop and platform decks at either end, which might be arranged for the reception and care of the wounded, are entirely cut off from the fighting parts, no communication through the bulkheads existing below. It is difficult to convey the wounded from the comparatively accessible regions, from others it would be practically impossible. In the four minor turrets the only means of egress is the small port in the side, through which the wounded man would have to be passed, as he could not remain inside, without interfering with the service of the guns. Looking at the ship as a whole, it is evident that the prevailing idea in her architecture was that of a fighting machine, where all other requirements were to be sacrificed so far as necessary to the installation of a very heavy battery with its requisite provision of ammunition and appurtenances. So far has this idea been carried that the usual living quarters for even the limited number of officers contemplated and actually detailed for her could not be provided without encroaching on space designed for other purposes. The space for ward room lavatory was encroached upon to furnish a room for a warrant officer. This room owing to its enclosed situation and especially to certain hot-water pipes passing into it is quite untenable in hot weather or a hot climate, as was shown during the first part of August when its average temperature was over 100 degrees F., and its occupant was obliged to pass his nights on deck."

Surgeon W. S. DIXON of the first-rate armored cruiser *Brooklyn* says:

"The sick-bay seems to be an unsatisfactory and ill-chosen place for the treatment of the sick. It is situated in the extreme forward portion of the berth deck and divided by an athwartship bulkhead into two parts. The forward section is so encumbered with stanchions (eight in number) for the support of the weights on the deck above that it will be possible to swing only a single cot at sea if the ship should roll very much. There is space for two additional cots but only when the ship is in harbor. The paint room is directly underneath this section, whose pungent disagreeable odors not only destroy largely the utility of the forward sick-bay but a passage-way must be kept for the painter and his assistants in the after sick-bay. It seems strange that in the construction of this great ship so little thought should have been given to the environments of the sick."

Surgeon C. A. SIEGFRIED on board the first-class battle-ship *Massachusetts* says:

"Those wounded in the turrets can not be taken out while in action, excepting possibly those from the base of 13-inch turrets, who can be treated in near-by passages. From the 8 inch turrets it would be very difficult to remove a badly wounded man, as the ports in the rear of the guns and the hatch below are small. No protected space exists below capable of holding more than a very few wounded men, and as the berth deck forward and aft of the casemate offers the only space for this purpose, transport of the wounded and injured to them could not be done until after battle. The importance of improving the medical department of our naval service is more and more apparent in view of the recent advances in the methods and rapidity of killing and wounding—hence it is advisable to institute a properly trained hospital organization."

Surgeon D. N. BERTOLETTE on board the first-rate protected cruiser *Minneapolis* reports:

"The transportation of wounded to the sick-bay is so difficult that in time of battle it would become impracticable. All transportation of the injured has to be left in the hands of persons not belonging to the surgeon's division. There is absolutely no protection for the injured in time of battle; the only protected places in the ship are in the space below the water line under the protective deck, access to which would be impossible with the ship in action, and under such circumstances the only resource will be to gather the wounded in places where they will least incommode the working of the battery and wait until after the action, and then those who are left, if any, may be attended to properly."

Surgeon S. H. DICKSON on board the second-class battle-ship *Texas* says:

"It is greatly to be deplored that no change was made in the location of the sick-bay during the reconstruction of the *Texas*. It still occupies the same noisy and contracted space in the bows of the ship, where the pitching motion is most severely felt. It lies between the forward torpedo-tube compartment and the chain-locker and serves a better purpose as a passage-way to the former and a store-room for two torpedoes, which take up one side, than as a hospital for the sick or a consulting room. But one cot can be swung in it with any degree of comfort to a patient and the battle-plates must frequently be shipped in the ports while at sea, thus excluding all natural light. There is hardly enough room in it to perform any surgical operation requiring anesthesia."

Surgeon P. A. LOVERING reports concerning the first-class battle-ship *Oregon:*

"While the sick-bay is not in the extreme bow of the ship, it is so far forward as to possess practically the same discomforts. The motion is great, and when going at full speed or breasting even a moderate head sea many tons of water are dashed upon the deck overhead. It is unfortunate that in our ships the sick-bays are so generally placed in the part of the vessel which is least fitted for that purpose. The sick-bay is situated in one of the most exposed and vulnerable parts of the ship, which forbids its use in time of action and consequently another station has been assigned to the surgeon. The means for conveying the wounded to this temporary hospital are not satisfacfactory. Even in the quiet of peace, when no confusion prevails, I have found the transportation of the injured to the sick-bay quite difficult, owing to the narrow doors and passages and many shafts which have to be avoided and which necessitate abrupt turns."

Surgeon E. H. GREEN attached to the cruiser *Marblehead* says:

"I would still urge the necessity of a suitable sick-bay. In a ship that is otherwise so comfortable and habitable the lack of a proper sick-bay strikes me as the one great defect."

In aggreable contrast to these reports, Surgeon W. R. DU BOSE reports respecting the double-turret monitor *Terror*, which is, however, properly an heirloom from the old Navy.

"The provision for the care of the sick is admirable. The location in the superstructure is excellent. The surgeon's station in time of action will be in the wardroom, but a careful study of the conditions likely to obtain impresses me with the conviction that the medical officer must needs be here and there to extend professional assistance where needed. The transportation of wounded through narrow inaccessible turret-ports, along narrow-wing passages with sharp angular turns, can only be safely undertaken slowly and gently and not in the hurry and confusion of an engagement."

The concurrent testimony of medical officers, all of them from twenty-two to twenty-seven years in active service, as to the impossibility of transporting men and officers disabled during action to places of safety where they can receive necessary professional attention and the absence of a proper ship's hospital for their subsequent care on board the model man-of-war, whether it be a first or second class battle-ship, armored cruiser, protected cruiser or unprotected cruiser, makes the need apparent for the *ambulance ship*, which the former Chief of the Medical Bureau, Dr. TRYON, has so urgently and repeatedly advocated during his term of office—a vessel which shall be the common hospital for a fleet or squadron, to which all the injured, both victors and vanquished, shall be conveyed immediately upon the cessation of an engagement, if they shall not have already died of their wounds; for casualties in the future on board ships in action may be expected to be very serious and such as to require immediate attention by the medical officers.

Surgeon **Siegfried** quotes from the account of one present that "the loss on board the Japanese cruiser *Matsushima*, in its late fight, from the explosion of one large shell alone counted up forty-nine wounded and fifty-three killed." But appalling epidemics and resultant monetary losses amounting to millions have not yet convinced our national legislators that it is the part of wisdom to protect the health of the people in the interior as on the sea-board by establishing a National Health Department which the **American Medical Association**, the American Public Health Association and all the State Boards of Health have united in recommending and urging; so, it is hardly probable that heed will be given to the unanimous voices of all the medical officers of the navy, or that the Chief of the Medical Bureau will be consulted as to medical requirements of the department of which he is the nominal head and exponent. Nevertheless, the medical profession at large can not be indifferent either to the establishment of a National Department of Health for the benefit of the whole country, or to the proper medical equipment of the new Navy, on which way depends its success in the event of hostilities.

THE PHYSIOLOGIC PSYCHOLOGY OF SMELLING.

It is a fact of some interest that while the special senses of vision and hearing have furnished some of the most striking acquisitions of modern physiology, the sense of smell has been left comparatively unstudied by investigators. The reason for this is not difficult to surmise; its organ has no mechanical peripheral apparatus that can bring its study into the domain of physics, nor do the variations of olfaction also follow physical laws like those of color or tone. The problems of its study fall therefore more into the domain of pure physiologic psychology, and the practical difficulties have been so great that few have attempted their solution. The close associations of the sense of smell with those of taste and general sensation, its easy sophistication and common, and indeed almost universal, impairment among civilized people, have added to the embarrassment and aided to discourage physiologic experimentation in this direction.

Within a very recent period it has been commonly taught that odors simultaneously sensed did not form a mixed odor, but were appreciated separately and consecutively. The mutual relations of odors and their shadings and graduations into each other have not been adequately marked, and the whole subject has been heretofore in a comparatively inchoate and unstudied condition. The ambitious but not especially scientific attempt of **Piesse** to establish a gamut of odors is of course well known, but has not been taken seriously, and as will be seen recent investigation has shown that odor combinations follow more the laws of color than those of the tone accords. Thus it has been proved that mixtures of certain odors give rise to new and simple odors, though this was not recognized as an universal law. **Zwaardemaker** in a memoir published within the last three years has attempted to classify odors and has made a series of nine classes, within some one of which he thinks any odor can be included. Combinations of odors he holds can be resolved into the elements belonging to these separate classes; when the sensation is sufficiently fatigued for one of these another is appreciated, and so on. In some cases he holds that odors do not blend but can be sensed at will by the experimenter.

One of the latest and most satisfactory studies of this subject is that of **Nagel**, published early last year[1], in which he attempted to test compound odors without unduly bringing in the elements of fatigue to complicate the question. He criticizes the previous works on the subject and discusses at length **Zwaardemaker**'s views, but does not offer any elaborated classification of his own, nor does he appear to have been satisfied himself as to what are the simple elementary odors, a position which, considering the difficulties and the necessarily more or less subjective nature of the study, is judicious rather than otherwise.

The conclusions he does arrive at are that any two odors may combine to form what is, at least for the moment, a new simple odor, the permanency of the latter being dependent on the fatigue of the organ for the components. The new smell is lasting according as this fatigueability for the original elements is equal or nearly so. With more than two components the conditions for permanency are improved. The compound odor has a resemblance, but not an identity with its components. A mixture thus made, though previously unknown to the observer, can be readily recognized as such when at least one of its component elements is previously known, and the more readily when the olfactory organ becomes fatigued so as to render any one of them more prominent than the others. Continued observation will therefore detect the odor as a mixture, if this was not possible at the first. If this is still difficult, if the fatigue for all the elements is still so nearly alike as to keep up the impression of a simple odor, special arrangements may have to be made to detect them, such as prior partial fatigue of the organ or **Passy**'s method of successive dilutions.

On the whole the analogies of odor combinations are rather with those of colors than with those of sounds, according to **Nagel**'s observations, which as the latest and apparently the best conceived method of study in this special line, may be taken as giving the latest scientific facts and views upon the subject. He does not, however, find the analogy quite complete in finding complementary odors that absolutely extinguish each other, though he finds several instances of close approach to this.

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[1] Zeitschrift für Psychologie und Physiologie der Sinnesorgane.

The human sense of smell is probably only an imperfect relic of what it once was in the earlier stages of evolution, but it still has its practical value, and whatever aids to complete our understanding of its physiology is a welcome acquisition. At present much is still obscure, and the field is yet an open one for further research.

RARE COMPLICATIONS OF TYPHOID FEVER.

While some medical men during the last few years have been largely interested in studying the value of recently introduced tests for the diagnosis of enteric fever, other clinicians have not been idle in studying this disease with particular reference to both its common and rare complications. More than twenty years ago one of the first and most valuable contributions to this subject was made by W. W. KEEN in his "Toner Lectures upon the Surgical Complications of Typhoid Fever," and the information therein contained, combined with valuable facts derived from more recent statistics, was utilized in the address which this well-known surgeon recently delivered before the Alumni Association of Harvard University. In most instances the surgical complications of typhoid fever have arisen from the infection of bones or glandular structures with the typhoid bacillus and usually with other infecting micro-organisms which have gained access to the body, and lodgement therein, chiefly because of the debilitated condition of the patient's system. Most of these surgical complications occur toward the end of the disease, or during convalescence from it, and naturally rarely require surgical interference until the febrile process has been arrested. There are other complications, however, of a medical character which have not been so carefully and exhaustively studied and these consist not only in grave disorders of the intestinal canal, but also in nervous and lymphatic manifestations, and further than this it is a noteworthy fact that typhoid fever is an infectious disease which in no way protects either during its course or immediately afterward the patient from other infections, so that other eruptive diseases may occur and various infectious processes may begin. An interesting complication of this kind, which seems to occur more frequently during the actual course of the disease than has hitherto been taught, is erysipelas, which, while it also quite frequently occurs during convalescence, seems to occur as a frequent complication during the progress of the disease itself. A number of interesting studies in regard to it have been published during the last few years, of which perhaps the most noteworthy is that of GERENTE, who collected from various sources 3,910 cases of typhoid fever, and among this number found that erysipelas had occurred as a complication of the acute stage of the disease, or its convalescence, in sixty-four instances, or in other words in the proportion of about one to every sixty-four cases. This observer also noted, in his Paris thesis for 1883-1884, that females are more frequently affected than males, which is a fact worthy of note when it is remembered that males are more exposed and more frequently suffer from typhoid fever. GERENTE also found that erysipelas as a rule made its appearance after the twenty-first day of the development of typhoid fever and it is also a point worthy of recollection that some epidemics of typhoid have seemed peculiarly liable to this complication, probably because the streptococcus of erysipelas was present with unusual virulence or else by reason of the fact that through lack of cleanliness of the mouth and nasal chambers solutions of continuity occurred in the skin and mucous membranes making an opening by which the streptococcus gained admission to the subcutaneous tissues. This is the more likely when it is remembered that a very large proportion of cases of erysipelas complicating typhoid fever are of the facial form. It is also evident from GERENTE'S study that erysipelas occurs more frequently in the grave adynamic forms of the disease, or in those in which the patient is exhausted by an unusually prolonged attack. He also believes that erysipelas usually produces a marked amelioration in the typhoid symptoms, provided that the inflammation is not situated about the face; for when facial erysipelas develops the mortality at once becomes very high, there having been sixteen deaths out of thirty-six cases of facial erysipelas which were collected by him. Probably it is only the phlegmonous forms of the disease which gravely imperil the patient's possibilities of convalescence, for in our experience the milder forms have certainly in no way seemed to delay it. Other cases have been reported by ARMIEUX, THIELMANN and BERTHOUD. In ARMIEUX'S case a soldier was affected at the end of his second week of typhoid fever by a purulent otorrhea and three weeks later by a facial erysipelas which began in the auditory canal; this was followed in a short time by an osteitis of the humerus and this in turn by death. In THIELMANN'S case there seems to be some doubt as to whether the patient was really suffering from typhoid fever, as before admission to the hospital he was unconscious and the greater portion of his face and forehead were covered with erysipelas. Recovery took place very gradually, but there seems to be reasonable doubt whether the case was not typhoid in type rather than due to real typhoid infection. In the instance reported by BERTHOUD there were marked meningeal symptoms during the attack of the typhoid fever which were followed by very tardy convalescence, the patient's general condition being very unsatisfactory. At this time the scrotum and inguinal region became greatly inflamed and erysipelatous, all the lower portion of the abdomen being involved in the inflammation and, finally, a portion of the scrotum became necrotic, death occurring from exhaustion. The autopsy showed that the iliac and renal veins were involved in a suppurative inflammation, secondary to the erysipelas of the skin.

In addition to this case, **Freudenberger** has recorded a case in which erysipelas appeared suddenly on both ears in the course of typhoid fever, and another instance of complicating facial erysipelas which was easily controlled and from which recovery took place. **Martinez** has also reported a case of typhoid fever complicated by erysipelas of the foot and leg, but there seems to be grave doubt as to whether this was a true case of typhoid, or, in other words, whether the typhoid symptoms were not due to an erysipelatous infection. Finally, we find three cases reported by **Hare** and **Patek** in which this complication occurred. In the first a well defined erysipelatous inflammation appeared over the left side of the face during convalescence from typhoid and seemed to be undoubtedly due to the fact that there was great soreness of the skin about the lips and buccal mucous membranes and as these became fissured and cracked they permitted infection. In the second case the erysipelas developed during the third week of typhoid about the bridge of the nose and finally extended over the entire face back to the ears and to the hair on the forehead. In the third case the erysipelas began as a complication during the third week of typhoid and was also facial in type. It is interesting to note that all three of these cases occurred in women, thereby supporting the statement of **Gerente**, already quoted, that this disease as a complication is more frequent in this sex than in males. It is also an interesting point to note that recovery took place in each instance notwithstanding the fact that the disease was facial in type and that in no instance was the condition of the patient rendered much more grave by the development of the erysipelas. So far as we know there has been no careful study of post-typhoidal insanity since the publication of **Hutchinson**'s classic article in **Pepper**'s "System of Medicine," which was published some thirteen years ago, but we know from **Hutchinson**'s paper, and from other contributions to medical literature, that such a sequence to typhoid fever is by no means uncommon. In rare instances, however, insanity or mania has developed early in the disease and not as a post-typhoidal manifestation and, in one case reported by **Mottet**, mania developed so early in the attack that the patient was sent to an asylum before the true nature of his disease was discovered, and **Henrot** and **Bucquoy** have seen the disease begin with the delirium of grandeur. Other cases of pretyphoidal mania have also been reported by **Murchison** and by **Daly**. In both of these cases the mania developed as early as the fourth or fifth day of the disease.

HIGHER MEDICAL EDUCATION IN CHICAGO.

A very important move in the interest of higher medical education was accomplished in Chicago this week by the affiliation of Rush Medical College with the University of Chicago, whereby the College becomes one of the institutions connected with this great University's system.

The College took steps last month, under its terms of agreement with Lake Forest University, to sever the connection held with that institution, in order that the new arrangement may be consummated June 1. The members of the active faculty who were trustees have resigned, and their places will be filled by trustees to be selected by the University.

It is understood that after this year higher entrance examinations will be exacted, and additional requirements for the degree in medicine insisted upon. Moreover, it is understood that the entrance examination will be conducted by an examiner from the academic department of the University.

In our judgment no step has been taken by this flourishing College more far-reaching in its character, nor none fraught with greater consequences to the whole medical profession of the Northwest. Naturally, this may not be immediate, but it is nevertheless certain.

President **Harper** announced the new affiliation at the last convocation of the faculties of the University. It is understood that this is the preliminary step toward uniting the College to the University as its medical department. This consummation can not be finally effected until the College shall be freed from debt.

President **Harper** said:

> It will be of interest to the faculties of the university to learn that at its meeting Dec. 29 the university trustees, in response to a petition from the trustees of Rush Medical College, voted to enter into affiliation with that college. The date proposed for the consummation of the relationship is June 1, 1898, but it is specifically stipulated that the affiliation shall be dependent upon three conditions.
>
> The first condition is that the board of trustees of Rush Medical College shall be reorganized. At the present time a great majority of the trustees are physicians, who are at the same time members of the faculty. This is acknowledged to be an unfortunate arrangement. The new trustees will be representative business men of the city of Chicago, who have no pecuniary interest in the income of the college.
>
> The second condition provided that the requirements for admission to the college shall gradually be increased, until in the autumn of 1902, only those who have completed the freshman and sophomore years of regular college work shall be admitted. This proposition, which had already been adopted by the present trustees of Rush Medical College, is a most significant step in the history of medical education.
>
> The third condition relates to the present debt of the college, which amounts to $71,000. It is provided that affiliation shall not take place until the debt has been paid.
>
> It will be the aim of the new trustees, with such assistance as the university may furnish, to develop the work of the medical college along university lines. In the history of Rush

Medical College it has always been found that with every increased requirement the number of students has increased. It is not expected, therefore, that the number of students will be diminished by the application of the new requirements for admission. It is confidently believed that college men from all parts of the country will be glad to enter an institution to which only college men are admitted.

The history of Rush Medical College during fifty years is one of the most interesting and splendid of any that has been enacted in the educational work of the West and Northwest. Its name today in medical circles is held in high honor. The degrees will be those of Rush Medical College, not those of the university.

The proposed affiliation, however, will at present give to the university a general supervision of the educational policy of the institution. The trustees of Rush Medical College will continue to be an entirely separate corporation. The trustees of the University of Chicago can assume no financial responsibility in connection with Rush Medical College.

This affiliation is a part of the general policy of the university in accordance with which already many institutions stand in close relations with the university. Whether Rush Medical College will ever become the medical college of the university time will show.

It is important, however, to note that even with this affiliation of Rush Medical College the university remains without a medical school of its own. The field is therefore open for some friend of humanity to devote one or two millions of dollars for the endowment of a great medical school, the income of which shall be devoted to special research, with which under any circumstances Rush Medical College would work in the closest co-operation. With the moral assistance thus gained the medical college will place itself in a position which, under ordinary circumstances, it could not otherwise have occupied. In thus lending its aid to the medical college the university performs in part the function for which it was established. In entering into this new relationship with a faculty composed of eighty members, the faculties of the university will join heartily in the wish that even more may be accomplished than it expected.

PATRIOTIC PHILADELPHIA.

Philadelphia, which has long held the pennant as the most faithful and loyal friend of the AMERICAN MEDICAL ASSOCIATION (if any superlative may properly be applied to the many faithful and loyal friends of the ASSOCIATION), has given a new proof of her affection and respect, as appears from the following letter from Dr. HOBART A. HARE, lately Chairman of the Committee of Arrangements:

To the Editor:—At the meeting of the Board of Trustees of the ASSOCIATION held on the last day of the Semi-Centennial Meeting at Philadelphia in June, 1897, it was voted at my request, as Chairman of the Committee of Arrangements, that the sum of $1,000 be appropriated for the purpose of aiding the Committee in meeting its expenses. The Committee has now settled all its accounts and is glad to report that it is able to return to the Treasurer of the ASSOCIATION the amount appropriated. Acting under instruction from it I have this day sent a check for $1,000 to Dr. H. P. Newman. The meeting was held therefore without cost to the ASSOCIATION.

Yours truly, H. A. HARE.

WRITE TO US for a copy of Department of Public Health Bill.

CORRESPONDENCE.

Appendicitis.

RICHMOND, IND., Dec. 20, 1897.

To the Editor:—I desire to endorse the subject matter on "Appendicitis" coming from Dr. Sterman of Evansville, Ind., in reference to "alarming mortality" following operative measures for this accident. I call it accident because it is only recently that the furore of operating in this class of cases has culminated. So that operation is advised too often, which produces the alarming mortality to which the Doctor refers. He refers to some cases, and cases of so-called "appendicitis" occur in many localities. In illustration of cases which may or may not be operated on, are those operated on too soon and those too late, with an intermediate class of cases not operated on at all, viz., those which recover; also those which die because *operation* was *postponed* till too late.

I visited five cases during the past summer, two for the purpose of operation. The first was dying when I arrived and there was no operation. The duration after a relapse was eleven days. Postmortem was made the day after death and showed a case of appendicitis, perforation of tube, infiltration into peritoneal cavity, general peritonitis, effusion of serum and pus with an effort at organized lymph, and an effort at arrest or cure at that point. Evidences of general peritoneal inflammation and consequent results were present. There was a time, had it been determined, when an operation might have been successful.

Another case was that of a woman 65 years old, and was well marked as to signs, symptoms, etc. McBurney's point was clearly defined but under careful and skilful management by her physician she recovered without operation, which was my advice, as I went with a view to operate.

The third case recovered without operation, under my own management. The symptoms were: Agonizing pain; McBurney's point distinct. Absolute quiet and anodynes arrested the disease in five days.

In another case a physician of this city was called in consultation. The diagnosis was appendicitis. Symptoms: Localized pain; McBurney's point made out; pain and localized soreness; vomiting; bowels obstructed. Under hot fomentations and opiates the patient recovered in a week with no operation.

The fifth case, Mrs. B., was a well marked case. She was a large, fleshy woman, a hearty eater in health with irregular habits of eating. She was attacked with severe pain in the right iliac fossa, low down. McBurney's point of pain and soreness was well marked. Abdominal pain was diffused. Tympanites was marked in general. The limb of the right side was drawn up to relieve the pain and soreness. Under a careful, yet somewhat protracted treatment, with the most absolute quiet, she slowly recovered without operation, and yet in the consultation I had advised an operation the next morning if no improvement occurred. She has had no relapse.

It so happens that I had been making a careful study of cases reported and what authorities have said (I mean operators) for several years back, and I have had occasion to postmortem such cases as have died and have found "appendicular trouble" which requires a careful diagnosis to distinguish from other troubles which occur in this region of the body. The differential diagnosis must or ought to be "absolute," using the writer's word, before an operation is undertaken, and then, too, at a period when complications are not sufficient to contraindicate it. Hence, I accept the three first conclusions as laid down by the writer, and also agree to the two last propositions, as these cases will in some degree prove, viz.: 1. That too many surgeons (those who are teachers, *i. e.*, surgical operators) operate too much, that is, they popularize an operation, which oftentimes in my judgment had better not be made, because patients do more or less slowly convalesce, finally recover and remain well after such attacks. 2. I have seen (in now nearly fifty years' practice) many such cases which we would now classify as "appendicitis," recover without an operation.

Finally, many lives have been lost by an operation made when convalescence had been established and any operative procedure was surely contra-indicated.

Thus I am glad to record my experience as sustaining the experience as recorded by the writer referred to and, furthermore, to suggest that the trend of modern surgical opinion will bear criticism and close examination; when, standing in the presence of a human life threatened with death and appealing to the surgeon for aid, the surgeon must be conservative, honest, backed with a comprehensive knowledge of the symptoms and facts and one who will not yield to temptation; hence, judicial in his mental make-up.

There are three more cases which might be added to this list, one recovering and two dying; one refusing operation under consultation and the second being too late for an operation, which was desired; and postmortem revealed in both appendicitis with peritoneal complications.

Summary.—Eight cases, five recovering and three dying from complications rendering it useless to operate; postmortem in three cases to verify diagnosis. In these cases the percentage of mortality is 37.5; the percentage of recovery 62.5, without operation. "Talamon (Fr.) admits that 90 per cent. recover without operation, taking all forms of the disease." Then why such urgency to operate?

R. E. Haughton, M.D.

Diabetes Mellitus.

Milton, Del., Dec. 28, 1897.

To the Editor:—In the Journal of Dec. 18, 1897, you gave us quite an elaborate article on "Diabetes Mellitus," for which the profession owes you many thanks. I have often thought while the scientists were almost turning the world over to unearth a remedy for the cure of consumption, diphtheria, etc., how little has been done about this dread disease. There are reasons for it, and one is they have never satisfactorily solved the why and wherefore, the primary cause; but why has there not been more investigation? For, if there is one disease more loathsome than another it must be diabetes. It deserves our most thoughtful and serious consideration. The authors give us but a faint idea of the disease or how or whence it comes. They speak of sugar appearing in the urine after eating certain kinds of food, or it may appear during many diseases. This we all know and it occurs in every physician's practice; but the primary cause and to get down to the bottom rock, the starting place, there has been but little light thrown upon this great question. Theory amounts to but little when you have to face that dread disease; we get lots of that out of the lectures of professors in our colleges and their writings, but when reduced to practice are of but little worth; but the cause of this trouble is what we are after and how to remedy it. Speculation won't do; no one can treat disease successfully without knowing something of the cause and how to remove it. As matters stand, we are like a blind man groping his way in a strange room where nothing is sure to him. Such, I fear, is the case with many of us, we are too prone to guess at what we don't very well understand and leave the result of our mistakes many times to what is called providential visitations. While it has been considered that the amylaceous and starchy foods had much to do with the diabetic condition, yet we have never known a demonstration of the fact, as we have said before. We often see sugar in the urine after eating certain kinds of food, but that does not go to say that such is the primary cause. And in our treatment we have always taken the reverse and administered acid and alkalies as an offset, making an attempt to neutralize the sugar; but always making a miserable failure.

Let us hear from you again.

James A. Hopkins, M.D.

Railroad Rates and the Denver Meeting.

Tecumseh, Mich., Dec. 28, 1897.

To the Editor:—Permit me to correct some of the erroneous impressions which my article of December 11 appears to have made upon the mind of your correspondent of Sioux Falls, S. D., and which find their way into the Journal of Dec. 25, 1897.

In the first place the members of the American Medical Association are not mendicants, and therefore do not solicit free passes to the Denver meeting, nor to any other meeting; neither can the writer ascertain that the members of this Association ever had free passes to any of their meetings, at least within the last quarter of a century. Secondly, the members of the Association simply require of the railroads that they give the members a similar rebate which the roads have already conferred upon members of conventions previously mentioned by the writer, and nothing more. This plan, if adopted by the railroads, would meet the approbation of "the average country doctor," as well as the average city doctor, who as a rule has neither money nor time to throw away for the benefit of the public, although he frequently does it, even for the benefit of opulent corporations.

The following paragraph from your correspondent mentioned above is merely quoted in order to show its absurdity: "The railroad company finally kept tab and discovered that in one year free transportation to the amount of about $60,000 had been called for and used to go to other places than the Association, over and above that actually used in good faith." This statement when applied to the members of the American Medical Association is all hocus pocus, without the slightest foundation of facts.

In conclusion, allow me to suggest that hereafter, the Committee on Transportation fix the place of meeting of the Association after they have succeeded in obtaining fair railroad rates to and from that point. Respectfully yours,

J. F. Jenkins, M.D.

License in Germany.

Toledo, Ohio, Jan. 3, 1898.

To the Editor:—In Dr. Blech's reply in the last issue of the Journal, he says: An American graduate can matriculate at a German university. That has not been denied, but he is not admitted to the State examination unless fulfilling the requirements as stated in my explanation. He says: The gymnasium embraces a curriculum of seven years only.

The classes are *Sexta*, *Quinta*, *Quarta*, *Tertia B*, *Tertia A*, *Secunda B*, *Secunda A*, *Prima B*, *Prima A*, with one year's course in each equals nine years if one is passed every year, which is not always the case. Age for admission to *Sexta* is 10 years.

As to *Gewerbefreiheit*, those are *the quacks*, and have no sheepskin of any kind, while the question under consideration is the *full fledged license to practice*.

These few remarks to show that Dr. Blech's corrections are incorrect, and that there is nothing to change in my primary statements. But now I can not help but pick up one expression found in Dr. Blech's last print, which I hope slipped under his pen without giving it the necessary premeditation. He says, and claims to quote me in doing so, that Johns Hopkins, Harvard, etc., are not considered equivalent to a German University. I most positively must take exception to this statement, and this with some self-satisfaction to me as a foreign graduate in opposition to a graduate from Barnes Medical College at St. Louis ("Polk's Directory"). Every learned European and German, not even necessarily a physician, knows and admits that *some* of the American schools are fully equal to the European standard, that a large number of American physicians, living and dead, are found among the leaders in the profession, and full credit is given to what Americans have done for the advancement of science. The question of equivalence, however, does not come up at all in legislating for the regulation of licensed practice of medicine; compare the State of New York, etc. B. BECKER, M.D.

An Interesting Case.

SIOUX FALLS, S. DAK., Dec. 27, 1897.

To the Editor:—Christmas eve two men engaged in a quarrel in a saloon in this city over a bill. They went out into the street to continue the quarrel. After some words, the larger of the two, who was a large powerful man, struck the other a severe blow in the mouth. Instead of falling backward as would have been expected, the man hit fell forward and his enemy struck him another blow as he went down. He immediately became unconscious, and though his heart was beating when medical aid reached him, respiration had ceased and he was shortly pronounced dead.

All sorts of conjectures were indulged in as to the probable cause of death, it not being thought probable that two such blows as were given could kill a man. Some attributed it to heart disease, others thought his neck must have been broken. The autopsy disclosed the fact that the man when struck had a large quid of tobacco in his mouth and had probably at the instant of receiving the blow taken a sudden and deep inspiration, drawing the tobacco down deep into the larger bronchi, completely occluding them, causing his almost instant death.

The coroner's jury found the man who struck the blows guilty of manslaughter in the second degree. We have heard of tobacco causing death, but never before in just this way.

A. H. TUFTS, M.D.

Medical Courtesy.

CLARKSBURG, W. VA., Dec. 21, 1897.

To the Editor:—In case a physician who is in good standing in his State medical society moves his location to a town in a neighboring county of the same State, in accordance with social or professional ethics, who is expected to first extend courtesies in the way of friendly calls, the new-comer or his older established professional brethren?

Very respectfully, R. A. H., M.D.

ANSWER: Where a physician moves into a neighborhood, courtesy demands that his brother practitioners should call on him within a reasonable time and give him the right hand of fellowship.

Texas Medical Practice Laws.

CHICAGO, Dec. 28, 1897.

To the Editor:—Kindly advise me in our JOURNAL as to laws and regulations of practicing medicine in the State of Texas.

"DOCTOR."

ANSWER: A license is issued after examination by a District Board of Medical Examiners. Diplomas confer no right to practice. *Vide* the JOURNAL, Vol. 22, p. 355.

SOCIETY NEWS.

Therapeutic Society.—At a meeting held at the National Medical College, July 29, 1897, to organize "The Therapeutic Society of the District of Columbia," there were present, Drs. H. H. Barker, G. R. L. Cole, C. T. Caldwell, J. T. Kelley, Jr., L. Kolopinski, D. O. Leech, J. S. McLain, G. C. Ober, W. M. Sprigg, M. F. Thompson, J. T. Wintern. The following officers were elected: L. Kolopinski, president; J. T. Winter, first vice-president; W. M. Sprigg, second vice-president; J. T. Kelley, recording secretary; G. C. Ober, corresponding secretary; J. S. McLain, treasurer. Article II of the constitution says, "The object of the Society shall be the study and advancement of medical and surgical therapeutics in all of the special branches of practical medicine. The Society meets in one of the rooms of the National Medical College, on the second Saturday of each month. The active membership is limited to fifty, and any member of the Medical Association of the District of Columbia is eligible."

J. THOMAS KELLEY, Recording Secretary.

St. Louis Laryngological and Otological Society.—On December 27 the St. Louis Laryngological and Otological Society was formed, composed of those physicians of St. Louis who limit their practice to the treatment of diseases of the nose, throat and ear. Dr. J. C. Mulhall was elected president; Dr. J. B. Shapleigh, vice-president; Dr. F. M. Rumbold, secretary, and Dr. A. S. Barnes, Jr., treasurer; for the year 1898. Meetings will be held monthly, and it is expected that the scientific programs furnished will be highly interesting and instructive. While the membership is limited, the privilege of inviting professional friends is reserved to each member.

BOOK NOTICES.

Transactions of the Medical Society of New Jersey. Cloth. Pages 347. 1897.

This volume covers the one hundred and thirty-first annual meeting held at Atlantic City, N. J., June 22 and 23, 1897. Besides society data it contains the following papers: "The Value of Antitoxin as a Remedial Agent . . . Against Diphtheria;" "Present Status of the Serum Treatment of Diphtheria;" "Headaches; Auto intoxication a Factor;" "A Criticism of Modified Milk and of Modern Dairy Methods;" "Some Important Points in . . . Acute Lobar Pneumonia;" "Scarlet Fever Reproduced by Inoculation . . . ;" "Progress in State Medicine and Hygiene;" "Aphorisms on Medico-Legal Testimony;" "Progress in Bacteriology During the Past Year;" "Progress of Ophthalmology and Otology;" "Account of a Patient . . . Who Swallowed Numerous Indigestible Articles with Suicidal Intent."

Transactions of the Medical Society of New Jersey. Cloth. Pages 453. 1896.

This volume contains full proceedings of the one hundred and thirtieth annual meeting held at Asbury Park, N. J., June 23 and 24, 1896. The paper and press work of the volume are a credit to the society, the volume being a companion volume to that for 1897. The contents comprises reports, minutes, etc., and a number of valuable papers.

The Action of the Health Department in Relation to Pulmonary Tuberculosis and the Scope and Purpose of the Measures Recently Adopted for its Prevention. Paper. Pages 70. 1897.

This is a report of the Board of Health of New York City, made to Mayor Strong, and contains much valuable data concerning pulmonary tuberculosis. Several maps of New York wards add to its value.

Proceedings of the Ninth Annual Session of the Association of American Anatomists. Paper. Illustrated. Pages, 65. Washington, 1897.

The volume contains the proceedings of the annual meeting held in Washington, D. C., May 4-6, 1897, including papers presented at the meeting and a number of full page half-tones illustrating the papers.

Biennial Report of the Department of Health of the City of Chicago being for the years 1895 and 1896. Chicago. 1897.

This report is one of the most valuable ever published by the Health Department. Dr. Reynolds in his letter of transmittal says, "The general excellence of the work of the department is due in a large measure to Dr. F. W. Reilly, who was appointed assistant Commissioner of Health by the undersigned in January 1895, and most wisely retained during the last administration and reappointed by the present."

The contents of the volume includes the Reports of the Divisions and Bureaue of the Department, contagious diseases, diphtheria, the anginas of 1896, diagnosis of diphtheria, special medical sanitary inspection, inspection of public schools, work of the disinfecting corps, statistics, tables, circulars, etc., of the contagious disease division, circulars of the department, hospital and ambulance system of Chicago, auxiliary medical corps, report of the municipal laboratory, relation of the medical profession to the water supply, regulation in the practice of midwifery, report of smoke division, report of the City Statistician, report of the attorney for department of health, financial statement by the secretary, roster of the department, vital statistics, mortality statistics.

There is an excellent statement of the new isolation hospital and the ambulance service. Taking it all together the report covers one of the most interesting periods in the history of the department, and may well be studied by the progressive sanitarian.

The Care and Feeding of Children. A catechism for the use of mothers and children's nurses, by L. EMMETT HOLT, M.D. Second edition. D. Appleton & Co., 1897. New York.

This catechism is one of the most valuable of its kind and if placed in the hands of every person that has the care of young children it would be an immense benefit to a great many of the coming generation.

Manual of Pathology Including Bacteriology, the Technique of Postmortems and Method of Pathologic Researches, by W. M. LATE COPLIN, M.D., being the second edition of the author's lectures on pathology re-written and enlarged. 268 illustrations, many of which are original. Philadelphia: P. Blakiston, Son & Co. 1897. Pages 638; price $3.00.

The work is divided into three parts, the first part is devoted entirely to the technique of laboratory examinations; part two, general pathology including bacteriology; third part, special pathology.

It is an admirable condensation of the vast subject, which, in view of the several special works devoted to each section, is extremely hard to compress in one volume.

A work of this kind must necessarily be largely compilation, and yet due credit should be given where the language of another author is used; especially is it desirable in the matter of statistical and comparative tables.

We notice for instance on page 211 of this book a table which is headed "diagnostic features of sarcoma and carcinoma," the first half of which is taken bodily from Woodhead's Third Edition, page 607.

Questions are appended to each of the chapters to aid the instructor in class recitations.

Syllabus of Laboratory Work in Materia Medica and Therapeutics in Use at Rush Medical College. By DANIEL R. BROWER, A.M., M.D., Professor Mental Diseases, Materia Medica and Therapeutics; J. A. PATTON, B.S., M.D.; JAMES C. GILL, M.D.; GEORGE W. HALL, A.M., M.D.; C. A. WADE. Pages 286. Chicago: The W. T. Keener Company, 1897.

This syllabus fairly illustrates the change that has taken place in the teaching of materia medica and therapeutics. In the old days, not more than a quarter of a century ago, the professor stood before his class for an hour and gave an address more or less profound, more or less eloquent, according to the abilities and mood of the lecturer. He held up a bottle containing a specimen of the drug or preparation, and as a special favor occasionally passed it around for inspection with the bottle tightly corked and the label duly numbered and recorded. This cursory inspection was supposed to be sufficient to inform the student fully of all that was necessary for him to know. Now it is different; the student must handle the drugs; must be able to test the qualities from a chemic and as well from a pharmaceutic standpoint. Not only that but he must record his results. For this purpose each student is separately provided with the necessary chemicals and apparatus according to the list duly set forth in the syllabus; the chapters to which are as follows: 1. Desk invoice. 2. General laboratory rules. 3. General instructions for tests. 4. Weights and measures. 5. Prescriptions. 6. Materia exercises on the various official drugs and preparations (190 pages of these exercises). 7. Therapeutics, exercises on electricity, massage, enemata, lavage, hydrotherapy, counter irritation, pneumotherapy, dietaries. Truly, the medical graduate of today has no holiday task to earn his medical degree.

The Psychical Correlation of Religious Emotion and Sexual Desire. By JAMES WEIR, JR., M.D. Second edition, pp. 338. Louisville: Courier-Journal Job Printing Company, 1897.

This book contains separate chapters on: 1. The origin of religious feelings. 2. Phallic worship. 3. Psychical correlation of religious emotion and sexual desire. 4. Psychical problems, viz.: "Psychology of hypnotism, virginity and effemination, borderland and crankdom, the methods of the rioting striker an evidence of degeneration, genius and degeneration, prophecy and insanity, occultism, etc., effect of female suffrage on posterity, animism and the resurrection, suicide in the United States. Is it the beginning of the end?"

Masters of Medicine. A Series of Monographs, edited by ERNEST HART, D.C.L., Editor of the *British Medical Journal*. Each volume with photogravure frontispiece. Large crown octavo, cloth. 1. John Hunter; Man of Science and Surgeon (1728-1793). By Stephen Paget, with introduction by Sir James Paget. Pp. 273, $1.25. 2. William Harvey. By D'Arcy Power, F.S.A., F.R.C.S. Eng., Surgeon to the Victoria Hospital for Children, Chelsea. Pp. xii-283, $1.25. New York: Longmans, Green & Co., publishers, 91 and 95 Fifth Avenue.

In the long fight against disease, especially its causes and for prevention, which has so far resulted in increasing the average length of human life to a considerable degree, the lives of those masters who have led in this warfare can not fail to be of great interest.

The names selected by the distinguished editor, Ernest Hart, are John Hunter, William Harvey, Edward Jenner, Sir James Simpson, Hermann von Helmholtz, William Stokes, Claude Bernard, Sir Benjamin Brodie, Thomas Sydenham, Vesalius.

The first two of these volumes are before us, and although much has been written of John Hunter and William Harvey, yet we must say that these volumes add very much to the general stock of knowledge concerning them, and to general literature has added a couple of biographies as entertaining as they are generally useful.

These lives are destined to become English classics and as such read by every physician who desires to be familiar with the progress of medicine and surgery among the English speaking race.

Transactions of the American Orthopedic Association, Eleventh Meeting, held at Washington, D. C., May 4, 5 and 6, 1897. Pp. 296.

This report is ably edited and contains the proceedings of the last annual meeting and the papers read at the meeting by the members of this society.

The work is well illustrated and handsomely printed. The historic address of the president, Dr. Samuel Ketch of New York, is one of the features in the volume of interest to the general profession. The book compares very favorably with its predecessors and is very creditable to the Association.

What a Young Man Ought to Know. By SYLVANUS STALL, D.D. Philadelphia: Vir Publishing Co. 1897. Price $1.

This book is to be commended from a moral and from a sanitary standpoint. One is apt to be prejudiced without reason against books of this class and we confess a weakness of that sort, but on perusal we not only find nothing from which to dissent, but very much to commend. The chapters on marriage are specially to be commended.

NECROLOGY.

William E. Wentworth, M.D., aged 24 years and an attending physician of a sanitarium, died from typhoid fever at the Hospital in New Rochelle, New York., Dec. 29, 1897. He was born in Rochester, N. H., where his father is a wealthy farmer.

Henry Parke Custis Wilson, M.D., University of Maryland, Baltimore, 1851, died in Baltimore, Md., December 27, aged 70 years. He was a medical writer, inventor of surgical devices and vice-president of the American Gynecological Society. As one of the founders of the Hospital for Women of Maryland he became widely known for his energy and identification with nearly all the hospitals and charitable institutions in Baltimore. He was also a member of the Maryland Academy of Sciences, of the Baltimore Academy of Medicine and of other professional bodies.

Erastus C. Coy, M.D., University of Vermont, Burlington, 1861, died after a short illness, aged 65 years. He had practiced for twenty-five years at Turner's Falls, Mass., where he died, having joined the Massachusetts Medical Society in 1870, and at a later period the Massachusetts Medico-Legal Society. A widow, a son and a daughter survive him.

Deaths in the Profession Abroad.—Joachim Voss, M.D., professor of anatomy and medical jurisprudence in the University of Christiana, president and founder of the Association of Norwegian Medical Practitioners and one of the first who performed ovariotomy in Norway, aged 82 years.——Prof. Victor Hüter, for many years lecturer on gynecology in the University of Marburg.——Nikolai Kleinenberg, M.D., professor of comparative anatomy in the University of Palermo, aged 57 years.——M. A. Olivet, M.D., professor of psychiatry in the University of Geneva and author of numerous publications on subjects relating to mental diseases, aged 76 years.——José M. Astigueta, professor in the Medical Faculty of Buenos Ayres, member of the legislature, minister of public instruction, superintendent of the asistencia publica, etc.——Alex. Bykow, M.D., Warsaw, director of the Med.-Chir. Academy.——Braulio Saenz, M.D., a prominent physician and surgeon in Havana, stricken at the operating table.

James F. Armstrong, M. D., Cleveland, Ohio, December 7. Dr. Armstrong was surgeon of the One Hundred and Fiftieth Regiment, Ohio Volunteer Infantry during the war and was later surgeon of the United States Marine Hospital.——J. L. F. Burdich, M.D., Winooski, Vt., December 11, aged 73 years.——Cornelius N. Dorsat, M.D., Montgomery, Ala., December 7, aged 44 years.——William P. Hogue, M.D., Charleston, W. Va., December 7, aged 77 years.——George C. Hoitt, M.D., Manchester, N. H., December 9, aged 62 years.——M. V. B. Johnson, M.D., Sioux City, Iowa, December 9, aged 55 years.——A. W. Peurifoy, M.D., Hankinsville, Ga., December 10, aged 69 years.——L. S. Sprague, M.D., Williamson, N. Y., aged 78 years.——E. C. Karner, M.D., Mill River, Mass., December 21.——J. W. Mix, M.D., Byron, Ill., December 28, aged 42 years.

Col. James Cooper McKee, a retired United States army surgeon, dropped dead at Butler, Pa., December 11, from heart failure. He was born in Butler in 1830 and gaduated from the Medical University of Pennsylvania in 1852, commencing practice at Altoona, where he remained four years. In 1858 he was commissioned assistant surgeon in the army and assigned to duty in the West, where he was engaged with different commands until the breaking out of the war. At the second Bull Run he served as assistant medical director of the army. At the battle of Antietam he was made assistant medical purveyor of the army. He afterward took charge of a hospital at Baltimore, and was next sent to organize a general hospital at Pittsburg. In 1863 Dr. McKee was promoted to the rank of captain and placed in charge of the Lincoln United States Hospital at Washington, D. C., where he remained until the close of the war. During this period 25,000 sick and wounded men passed under his attention. After serving as chief medical officer at Santa Fé, N. M., Fort Wadsworth, N. Y. and Vancouver Barracks, W. T., he was retired in 1891 for injuries received in the line of duty, with the rank of lieutenant colonel, returning to his home at Butler.

John Waterman Hamilton, M.D., Willoughby University, Ohio, 1846, relative of ex-Governor Hamilton of Illinois, and widely known in Ohio, died in Columbus, his home, January 1, aged 72 years. He was a member of the American Medical Association and as well of the Ohio State and Central Ohio Medical Societies. His name appears in the list of delegates to the Ninth International Medical Congress, which convened in Washington, D. C., in 1887. He was one of the older surgeons of Columbus and one of its ablest men. He was a descendant of Dr. Wm. Hamilton of Edinburgh, Scotland, who settled in Maryland in 1700 and was the founder of the family in Maryland. Dr. Wm. Hamilton was an able physician and was called in consultation by Dr. Craig in Washington s last illness.

Elton John Sherow, M.D., Collège of Physicians and Surgeons, New York, 1890, died in New York City January 1, aged 24 years. He was an earnest laboratory student, but appears to have overtasked his energies.

PUBLIC HEALTH.

A Quarantine Convention.—The following papers, which have been forwarded to the Journal by Dr. W. H. Sanders of Mobile, Ala., are of interest and self-explanatory. The Doctor says: "The idea is to educate both ourselves and the public, in order that we may reach correct conclusions both as to the theory and practice of quarantine, as justified by the genius and principles of our systems of government, Federal and State. . . . . The medical papers are intended to be written, not in technical language, such as would be appropriate before a medical body, but in plain and perspicuous language, such as is adapted to a popular audience. . . . The idea is, further, that each paper shall close by a clear and succinct statement of such propositions as the argument employed seems to justify, which propositions can be submitted to the vote of the convention for adoption, modification or rejection."

The State Board of Health.
Montgomery, Ala., Dec. 7, 1897.

Governor Joseph F. Johnston.

Dear Sir:—The recent introduction of yellow fever into one of our Gulf States, and its spread therefrom to several others of them, has strongly emphasized the wisdom of making an effort to devise some more efficient measures than have heretofore existed for the prevention of a similar disaster in the future.

The time seems ripe for such an effort. Our people are deeply and universally aroused on the subject, and justly so, for no subject could be more vitally connected with their social, sanitary, commercial and industrial interests. The magnitude of the questions involved points out the necessity of adopting the wisest course in order to reach the best possible results.

To me it is clear that our first need is light—all the light we can possibly procure. To obtain this, I propose a Quarantine Convention of the South Atlantic and Gulf States. Their geographical position gives them an interest in the subject far above that of any or all of the other States, and their recent experience eminently fits them for dealing with it intelligently and wisely. Their interests are sufficiently homogeneous, and their exposure to the infection sufficiently great and uniform as to closely unite them in a friendly and earnest effort to formulate systems of protection that shall be founded upon principles of equity and justice and shall at the same time be efficient and harmonious.

At the proposed convention delegates should represent every business and profession, with a view of making a scientific and exhaustive study of both the theory and practice of quarantine. To eminent lawyers should be assigned themes intended to develop and clearly set forth the legal propositions upon which all systems for the protection of the public health should be built. To merchants should be assigned commercial themes, to doctors scientific ones, to railroad and steamboat officials those bearing upon transportation, to editors those appertaining to public policy, to representatives of the postal service those affecting the mails, and to all other classes subjects appropriate to their several departments of business.

With carefully prepared papers on appropriate themes, belonging to each of these departments, together with the discussions that would grow out of them a flood of light would be thrown on the subject of quarantine. In a word, the idea is to make the proposed convention broadly educational, and at the same time to furnish an opportunity for cultivating that spirit of harmony and mutual confidence which will be so conducive to the most judicious legislation.

I deprecate the haste with which many of our people are forming opinions upon the subject of quarantine, and fear they are doing so without due consideration. That our system of quarantine urgently needs to be reformed is freely conceded, but let us by all means search out and apply the best remedies. I know of no other way of finding these remedies than by studying the subject according to the plan briefly indicated.

I have but imperfectly sketched the beneficial results that would flow from a convention of the kind suggested, but I feel sure you will readily see the wide scope of usefulness it would fulfil. I suggest Mobile as the place, and about the first of February next as the time for holding the meeting. Mobile is centrally located with reference to the territory to be represented, and lies on the coast that is most directly interested in securing protection. The hospitality of her people is proverbial, and I feel safe in saying that a body of men meeting there for the purpose indicated would receive hearty and cordial welcome.

May I ask your moral support and co-operation in promoting my objects, feeling sanguine as I do that much may be thereby achieved for the good of the entire country. With distinguished consideration, very respectfully yours,

[Signed] W. H. Sanders, M.D.,
State Health Officer.

State of Alabama. Executive Department. Office of the Governor.

Montgomery, Ala., Dec. 8, 1897.

Dr. W. H. Sanders, State Health Officer.

Dear Sir:—I have just received your favor laying before me your suggestions in regard to calling a Quarantine Convention, composed of delegates representing all classes and pursuits affected by quarantine restrictions, and to consider the origin and most effective means of stamping out epidemics.

I beg to say that I heartily concur with your suggestions. The time seems most opportune for our wisest physicians, lawyers, merchants, farmers and others affected to give thoughtful utterance to sound views. I am sure that such a convention will be a great educational institution; that it will be able to illumine many dark spots, and enable us in the future to enact such wise and wholesome regulations as will properly protect the lives and property of our people. I beg to say that you shall have my hearty co-operation in the matter proposed and that I shall do everything consistent with my position to have Alabama and all the States affected, represented by its best thought in all respect to the vital interests that will be there considered.

Yours respectfully,
[Signed] Jos. F. Johnston, Governor.

Preliminary Program. Submitted by W. H. Sanders, M.D., State Health Officer of Alabama.

1. Quarantine with reference to international rights and interests. 2. Federal and State powers as to quarantine. 3. State and National quarantine as affecting commerce. 4. Quarantine as it affects personal rights. 5. Sanitary inspectors of foreign ports. What is being and can be done in this direction. Sanitary conditions of foreign ports that menace us most, and what can be done to improve them. 6. Policing the sea along the South Atlantic and Gulf Coast to prevent the introduction of contagious and infectious diseases. What is being and can be done? 7. National disinfecting stations for ships, where located, how operated, under what rules, with what results and whether others are needed. 8. State maritime disinfecting stations, how many, where located, how operated, under what rules and with what results. 9. Medical inspectors of south Atlantic and Gulf seaports and coast towns to discover first case or cases of infectious or contagious diseases, how best to provide for. 10. What steps should be taken in dealing with first case or cases of infectious or contagious diseases that may reach our shores. 11. State and local quarantines, how best to adjust their relations. 12. Depopulation of infected cities, how to be accomplished and to what points may refugees go. 13. Quarantine diseases, what are they and how should they be dealt with? 14. Infection, how conveyed and periods of incubation of infectious diseases. Disinfection, when needed and how applied? 15. The mails and quarantine, how practically to deal with them when proper authority has declared that they should be disinfected. 16. Management of railroad trains during an epidemic of yellow fever, from a railroad standpoint. 17. Classification of freights as to their liability of conveying infection. 18. What may be done to check the spread and to exterminate yellow fever after it has become prevalent in a city? 19. Boards of health, of whom should they be composed and how should they be appointed? To whom should the practical administration of quarantine be committed? 20. Practical difficulties in diagnosing yellow fever. 21. Interstate quarantine from a constitutional, commercial and sanitary point of view. 22. Experiences of a quarantine officer in the recent epidemic. 23. National quarantine. 24. A National Bureau of Public Health. 25. The relation of the press to epidemics and quarantine. 26. Quarantine from a moral standpoint. 27. Sins and absurdities committed in the name of quarantine in the recent epidemic. 28. Introduction of yellow fever into the country in the past; from what places introduced and how.

Typhoid Fever Epidemic in New Jersey.—A serious epidemic of fever has befallen Paterson, N. J. It began at an orphan asylum and thence spread to other parts of the city. About seventy cases are known to have existed. It is the belief of those who have investigated the matter, that the cases at the institution and in various private families originated from the milk supplied by a certain dairyman, in whose family there had been three cases of fever. These patients had been sick for a month or more, with what was called "remittent fever," and their discharges found their way into the water that was used for washing milk cans and other appurtenances of the dairy. Among the other towns where typohid fever prevails to a greater or less extent are Passaic, Arlington and Kearney. A boycott against New Jersey milk has resulted, not only in New York City, but in certain of the large cities of the former State. Thousands of quarts of milk are being rejected every day, and are sent back to the shipping point, compelling the farmers to rush them off to the local creameries, which are now glutted and refuse to take any more, so that the daily product on many of the farms is a dead loss. Many dairymen who personally fought in its effort to secure legislation that would have averted such a calamity are now willing to co-operate in securing some stringent laws that will prevent a recurrence. The fact that they are losing thousands of dollars a day has brought them to their senses, and as many of them are innocently suffering they are willing that some laws should be obtained that will bring about an immediate supervision of dairies by the boards of health. Upward of fifty epidemics with a long list of fatalities have been caused in New Jersey in recent years by infected milk, and invariably by fevers in the families of those handling and dispensing the same to a large number of consumers. Until the epidemic has become alarming, there is no official investigation, and then it is found that some dairyman is selling milk with a bad case of fever in his house, with the water that he uses to cleanse his dairy utensils infected. The authorities then try to stop him from dispensing any more milk, but the damage has been done, as the long list of the sick and the dead will show. A stringent law is needed which will compel local boards of health to exercise the same precaution as the board of health in the cities and towns. There is no attempt made at reporting infectious diseases, for the reason that the township board of health would take no action if they were reported. If the physician who finds fever in a country farmhouse, where the principal business of the occupants is preparing milk for the market, would report the case to the local board of health as soon as the fever makes its appearance, and the township board of health would report to the State Board of Health, that creamery would be seized at once and communication shut off with the consumers of the milk.

Volunteer Organizations for the Detection of Plumbing Defects.—For several years Edinburgh has had its unofficial system for the expert sanitary examination of dwellings. There is now in New York City, a somewhat similar undertaking, under the name of the Building and Sanitary Inspection Company, and they "offer their services to those who live in houses, for the discovery and correction of causes of unhealthfulness in the appointments and environment of the dwelling." A few years ago one of the most aristocratic apartment houses in the neighborhood of Central Park experienced an invasion of diphtheria, and though there were several victims in different rooms, the evidence was nearly conclusive, that it had originated in the house; and one bereaved father called in a sanitary engineer, in spite of the protests of the indignant owner who told of how much money he had spent on his ornamental bathtubs and nickel-plated pipes. The expert found that the ventilating pipe that should have gone out at the roof, and extended above it, left off at the lower side of the ceiling of the upper story and was there replaced by a painted cylinder of wood, which passed up through the storage attic. The noisome exhalations could do nothing else than diffuse themselves throughout the house, and the outraged inmates took the matter to court, where there was a preliminary hearing; and rumor had it that the murderous owner of the building paid fabulous sums to "buy off" his tenants, and immediately had the most faultless of plumbing put in under the direction and inspection of a competent sanitary engineer. This could not recall to life the dead; and with variations the above is a story that is repeated again and again every year, and tenants and owners are very active after the mischief is done. Had the people who suffered from this landlord's cupidity caused an examination to be made before they rented their rooms, a wholly different result would have been seen. Is it possible that careful fathers who are good business men in other matters, can have been inveigled into attempting to live in houses where eighty in a hundred are defective in the vital point of healthfulness. They were not inveigled, they were simply satisfied with their own judgment, or took on trust the assurances of agents or owners. Many houses were carefully plumbed according to the lights of the time when they were built; but in some the plumbing is worn out, and when a replacement is suggested there is a distinct painful thrill in the pocket nerve of the owner, and he fights it off as long as possible; and where he suspects that there should be a thorough overhauling, but the prospective tenant does not not push his inquiries, he soothes his conscience by the thought that "the sanitary condition of a house is, after all, a matter of concern only to the people who live in it." But if neglect is proven and taken to the courts, he wishes he had not waited to be forced to do right. There has arisen in some quarters a tendency to ridicule the idea that the germs of disease are to be found in the emanation from defective pipes, and though there is, no doubt, a degree of high health and robust constitution that can resist their action, there are thousands who suffer from what for lack of a more definite classification, they call "malaria."

"Light from Dust."—A plant at Shoreditch, London, in which Lord Kelvin is interested, has recently been opened, the object of which is to destroy waste and at the same time utilize it for the production of electricity for lighting purposes. It is probably the first of its kind on anything more than an experimental scale; and this has been done in a large borough of 130,000 persons, mostly belonging to the working class. The steam requirements of the electric lighting station, great though they be, must be regarded of secondary importance in comparison to the hygienic manipulation of the refuse compared to the doubly expensive method of sending it away by rail or barge to be utilized for raising some low-lying land on which in a few years houses would be built. Not only will the cost of getting rid of the dust be materially reduced to the parishioners, but the districts where it was "shot" will benefit largely by its absence. Medical men in localities where town refuse has been deposited have been impressed that its presence is a determining factor in the production of diphtheria. From a health point of view the introduction of electric lighting and electric power can only be regarded as a distinct advance. It is unnecessary, in this year of all others, to dilate on the benefit of the electric light over other methods of lighting, but in Shoreditch special arrangements have been made such as in the introduction of the "penny-in-slot" meter principle, and otherwise, to bring the light within the reach of the small shopkeeper and householder. Further, the use of electric energy is certain to be largely appreciated in the numerous small factories and domestic workshops with which the district abounds. It is not necessary here to enter into a description of the various works comprised in the undertaking, but reference must be made to one or two of the novel features which have here been combined. By the system of feed thermal storage which is brought into operation for the first time, the steam generated during the daytime in the boilers is passed into a thermal storage cylinder, where it is mixed with a small quantity of cold water from the feed-pumps, the proportions being such that, when the evening approaches, the cylinder is full of water at the temperature and pressure of the steam required by the engines. The cylinder is then shut off from the feed pumps and connected to the boilers, which in their turn are connected direct to the engines; hence, when the boilers require feed water, they are supplied with it from the cylinder at such a temperature that the fuel which is then being burnt has merely to furnish to the water in the boiler the heat sufficient to overcome the latent heat of evaporation at the required pressure. The result of this arrangement is that the boilers are able to evaporate about one-third more steam than they would be able to evaporate were they connected directly with the water-mains; and, moreover, the importance of the thermal storage cylinder is further enhanced by the fact that it acts as a water purifier. The six boilers are all fired with the waste gases from two destructor cells, one on each side of the boiler. The products of combustion from the destructor cells are led under the boiler tubes immediately above the level of the fire-bars, the latter being fitted in the boiler together with fire-doors, in the same manner as if the boiler were fired with coal, irrespective of the dust destructor cells. This grate is provided for the express purpose of enabling the boilers to be fired by coal alternatively or simultaneously with the absorption of heat from the waste gases of the destructor cells passing through the boilers. This arrangement fulfils a two-fold object. 1. The provisions of the secondary fire before referred to, which is in the most desirable position for further heating the destructor gases immediately they enter under the boiler, should that operation be requisite, and having further advantage that the heat so produced is ultimately so completely absorbed by the boiler, and thus turned into profitable use. 2. The arrangement adds to the steam-raising power of the boilers when the heat of the destructor gases is not sufficient to produce all the steam required, or when the destructor cells attached to a particular boiler are out of order, to enable the boiler to be entirely fired by coal or coke. It has been found, however, that the heat produced by the destruction of the "dust" is sufficient without the addition of any coal. There are twelve cells in all in the destructor house, which measures eighty feet square. In place of the more usual inclined road and tipping platform considerable saving is effected, both in space required and in horse flesh, by the introduction of a series of electric lifts and motor cars for revising and distributing the refuse throughout the cells. One man is thus able to keep the whole twelve cells charged at regular intervals, and the refuse is never left to ferment or heat on hot brickwork or ironwork, and so prove a nuisance to the neighborhood. A like result from the gases which might escape is prevented by the use of fans which ventilate the building and at the same time drive the air through the furnaces. A connection has also been made from the adjoining sewer to the intake of one fan, which constitutes an experimental effort to ventilate the sewer by passing the gases abstracted therefrom through the fires, and thus rendering them innocuous.—*Sanitary Journal.*

MISCELLANY.

Prince Bismarck.—A recent cable dispatch states that Prince Bismarck is suffering from some form of dropsy, and has recently had his feet tapped.

Erratum.—In the JOURNAL of December 4, page 1184, second column, line 8, the name of the author of the article on rheumatism should read Dr. Edmund L. Gros instead of Geos.

Parke, Davis and Co., have issued a handsome little brochure, the "Lofoten Islands and their principal product," in which the pictures of this group of islands are beautiful and of general interest.

The Russian Census.—The revised returns of the Russian census gives the total population of that country at 129,000,000. This makes Russia third in rank among nations, China coming first with an estimated population of 490,000,000 and the British Empire next with 208,000,000.

A Book by Dr. Outten.—Dr. Warren B. Outten, Chief Surgeon of the Missouri Pacific Railway, has written a book: "Man's Inherited Martyrdom—A Fitful Study of Degeneration." The work is of the greatest interest and is sure of a favorable reception. It will be printed as a serial in the *Tri-State Medical Journal and Practitioner*, of St. Louis, which has the exclusive right to the publication.

The Passing of the Family Doctor.—The London *Lancet* has lately expressed its regret at the signs of the wasting prestige and influence of the medical profession. That looks as if the embarrassments that beset physicians in New York were operating in London also. There seems to be some reason to anticipate a time when New York families will contract with a syndicate of physicians, comprising a complete set of the necessary specialists for the supervision of the family health at a fixed annual price.—E. S. Martin in *Harper's Weekly*, Dec. 25.

Missed Everything Except Vaccination.—An old Georgia darkey, with his arm in a sling, was talking to another on a West End car yesterday. "Yes, suh!" he said with emphasis. "I gone up now, fur sho'! You see dis arm in de sling, don't you?" "Yes." "Well, suh," the old man continued by way of explanation, "I'll be 80 years old next harvest; I done see lots er trouble in my day, but by de grace er God I miss de Ku-Klux, I miss de Viglance Committee, I miss de White caps, en I miss de Regulators, but now in my old age, please God, waxinators kotched en cut me."—*Atlanta Constitution.*

Ocular Hemorrhages in Young Subjects and in Adults.—Abadie, in the *Soc. d'Ophtal. de Paris*, lays stress on two symptoms which he thinks are of importance as bearing on the causation of intra-ocular hemorrhages in young subjects: 1. The epistaxis which often precedes or accompanies them. 2. A noticeable diminution in the number of the red corpuscles in the blood. These seem to indicate that the hemorrhagic process depends on an alteration in the blood. The results of treatment directed to improving its quality have been found by Abadie to be most satisfactory. He strongly recommends a glass of sulphuric lemonade, extract of cinchona 1 gram, and perchlorid of iron 10 to 20 drops, to be taken daily. To favor absorption of the effusion he applies the artificial leech to the temple. Hemorrhages associated with choroido-retinitis are not to be confused with the above, and require a mercurial treatment.—*British Medical Journal.*

Antivivisection Bill.—The following authoritative statement from Senator Gallinger appears in the *Congressional Record*. "Upon solicitation from several Senators saying that they were receiving letters from constituents, protesting against the passage of the Bill, I allowed it to drift along and did not ask for the consideration of it. On May 13, 1897, the Bill was again reported and is on the calendar. . . At an early date I shall move to take up that Bill, which is Senate Bill 1063, Calendar No. 136. I trust that when I ask the consideration of the Bill it may not be objected to, but that that matter which to my mind is extremely important, and a controverted matter, I will say, on the part of physicians, scientists and humanitarians, may have a fair discussion and that we may have a vote of the Senate deciding whether or not that Bill shall pass this body."

Reading Through Opaque Substances.—Professor Grasset reports a curious experience with a subject who was able to read the contents of a letter enclosed in silver paper inside a sealed envelope at 300 meters distant. No one in the town knew the contents of the letter, which had been sent especially for the test. The affair was reported to the Academy of Sciences of Montpelier, and the still sealed letter presented, which was opened and found intact, although a pin had been passed through it and buried in the seal. The contents were an unfamiliar French verse which was read correctly, and a Russian, German and Greek word which the subject asserted she could not read, concluding with the correct date and signature. A committee has been appointed to go to Narbonne and make still further tests of Dr. Ferroul's "subject" in the interest of science.—*Semaine Méd.*, No. 56.

Causes of Poverty.—In Europe paupers are defined to be those who receive aid from government or charitable funds. The proportion of paupers to the whole population is highest in England, 28 per 1,000. In Scotland it is 24, in Ireland 23, in Holland 20, in Italy 10, in Austria 9, in France 8 and in Germany 7. There is no similar division made officially in the United States, and, taking the country through, the proportion here is less probably than 2 per 1,000. When it comes, however, to the causes of poverty, the American statisticians are, so to speak, right in line with what some persons would call their conjectures, but what they describe as their conclusions. Thus, of 100 cases of poverty, 11 per cent. are chargeable to drink in excess, 21.3 per cent. to what the statisticians call "misconduct," a rather vague designation for unwise or reprehensible acts; 28 5 per cent. to lack of work or inadequate pay for work done, or insufficient, half time employment; and most of the remainder to "misfortune."—*New York Sun.*

The Restoral of Flogging as a Legal Punishment Recommended.—The *Lancet* is more than half right in its advice to have flogging made a part of the punishment for toughs who throw stones at railway trains. The custom of throwing stones at trains is far too common and in addition to its being almost impossible to arrest those who do such things, the penalty provided by law is far too light. A peculiarly sad accident arising from this habit was reported in the *Daily Press* on October 19 as follows: "Ben Hitchen, a well-known express driver on the North Western Railway, lies at Crewe unconscious. He had charge of the Scotch Express to Carlisle, and when passing under Hartford bridge, going at great speed, a stone hurled with much violence from the bridge struck him over the eye, inflicting a fearful wound. Erysipelas has set in, and his condition is precarious." Drivers of express trains are exposed to quite enough dangers from the nature of their ordinary work without having to undergo such risk as the one mentioned above. If the scoundrel who threw the stone is ever caught, though we are much afraid he will not be, he deserves the soundest flogging that a criminal ever had. In a case like this one not only is the driver's life imperiled, but the lives of all those in the train. We sincerely hope that the law may be amended so as to make it legal that anyone who either throws any missile at a train, whether he hit it or not, or places an obstacle in the way of a train should be well flogged or birched in addition to a term of imprisoment.

Degenerate Females at the Guldensuppe Murder Trials, New York.—During the revolting recital of testimony in the Thorn murder trial there were numerous women present who seemed to delight in listening to the shocking, disgusting details of the butchering of Guldensuppe. It is difficult to believe that any woman not morally and physically a degenerate would seek to be present at such a place during such a scene. Yet at Thorn's trial some of these creatures fought with each other in the corridors in their desire to crowd into the court room. In the cause of common decency, in the name of womanhood, which these curious females dishonor, the Bench should use its utmost endeavors to keep out the unwomanly women of morbid appetites. Under shelter of constitutional rights, never intended to be used for base purposes, they may seek to gain admittance, but the judges should do all in their power to drive them out of the trial room. And wardens of prisons should close the door against them when, later, these queer human beings in petticoats come with their floral offerings and their sickly sentimentality to visit convicted murderers in their cells. —*New York Herald.*

Water-Supply and Irrigation Papers.—The following numbers of the series of Water-Supply and Irrigation Papers have been printed and can now be had on application, or until the supply of each is exhausted. Requests specifying certain papers and stating reasons for asking for them are given prompt attention, but it is impossible to comply with general demands for all of the series indiscriminately: 1. Pumping Water for Irrigation, by Herbert M. Wilson, 1896, 8o, 57 pp. 2. Irrigation near Phœnix, Arizona, by Arthur P. Davis, 1897, 8o, 97 pp. 3. Sewage Irrigation, by George W. Rafter, 1897, 8o, 100 pp. 4. A Reconnaissance in Southeastern Washington, by Israel Cook Russell, 1897, 8o, 97 pages. 5. Irrigation Practice on the Great Plains, by Elias Branson Cowgill, 1897, 8o, 39 pp. 6. Underground Waters of Southwestern Kansas, by Erasmus Haworth, 1897, 8o, 65 pp. 6. Seepage Waters of Northern Utah, by Samuel Fortier, 1897, 8o, 50 pp. 8. Windmills for Irrigation, by E. C. Murphy, 1897, 8o, 49 pp. 9. Irrigation near Greeley, Colo., by David Boyd, 1897, 8o, 90 pp. 10. Irrigation in Mesilla Valley, N. M., by F. C. Barker (*in preparation*). (Other papers on related subjects.) F. H. NEWELL, Hydrographer in Charge, Washington, D. C., Oct. 15, 1897.

Rush Medical College Changes.—Prof. Edward L. Holmes, president of Rush Medical College, has resigned. A meeting of the faculty was held January 4 for the purpose of considering the resignation of Dr. Holmes and for passing on the question of affiliation with the University of Chicago. On the question of joining with the University every member present voted in the affirmative. The resignation of Dr. Holmes was also accepted. The retiring president of Rush Medical College, Dr. Edward L. Holmes, will be 70 years of age February 11, and his resignation is to take effect at that time. More than a year ago he announced that when he was 70 years of age he would retire from the presidency to make room for some younger man. He asserts that his age is the only reason for resigning. He was the first physician in Chicago to limit his practice to diseases of the eye and ear. He was the founder of the Illinois Eye and Ear Dispensary at the close of the war. He was prompted to do so by the large number of returning soldiers who were suffering from affections of the eye resulting from the hardships of the field. He became a professor in Rush Medical College in 1860 and in 1883 was made its president. When the Presbyterian Hospital was founded in the latter year he was one of the doctors effectively interested in the undertaking. For more than a year Dr. Holmes has been in feeble health. Rush Medical College lacks only three years of being as old as incorporated Chicago. It was founded in 1836. It has the oldest charter of any school in the State. In 1843 the school was at 49 Clark Street and it had twenty-two students. The next year it was removed to Dearborn Avenue and Indiana Street. The home of the school was destroyed in the great fire of 1871 and five years later a structure was erected for it on the site of the buildings it now occupies at Harrison and Wood Streets.

Detroit.

AT THE regular meeting of the Wayne County Medical Society, December 16, Dr. C. D. Aaron presented a paper entitled, "The Diagnostic Value of Trans-illumination of the Stomach." The author exhibited a number of life-size diagrams representing the healthy stomach in its normal position as it appears when the interior is illuminated by the gastrodiaphane and several pathologic conditions of the organ, such as dilatation, carcinoma of the pylorus and of the body of the stomach, gastroptosis, etc. The author then gave a description of and exhibited the instrument known as the gastrodiaphane, and illustrated its practical uses by an actual introduction before the Society into a patient's stomach, showing by trans-illumination the dilated condition of the organ. In the discussion that followed the author stated that the patient's condition was undoubtedly due to repeated stomach washings and strongly condemned its general practice by the profession.

THE DETROIT MEDICAL AND LIBRARY ASSOCIATION at its regular meeting, December 20, listened to an interesting paper by Dr. A. N. Collins, entitled "How Shall We Treat Threatened Puerperal Convulsions?" in which the doctor said that a thorough knowledge of the cause or causes of puerperal convulsions would greatly aid in prophylaxis and treatment. The Doctor took up the pathology of the subject, giving the different theories advanced as to the cause of puerperal convulsions. He said: "I believe a majority of us hold the broad idea that the poisons developed in the tissue metabolism of physiologic cell activity imperfectly eliminated by the excretory organs, accumulate in the system, from which we get eclampsia or convulsions." In those dying from the disease, he continued, the kidneys are found in all conditions from the normal to acute degenerations, dilatation of the pelves and ureters, and also chronic nephritis. It has been found that the cerebral arteries have been involved even in young women; or again, another theory is that a toxic substance is produced in some unknown way which causes contraction of the arteries, arterial degeneration, acute degeneration of the kidneys and acute nephritis and that this poison is the cause of the convulsions and the cerebral and vascular phenomena. In all theories a quantitative and qualitative examination of the urine is our guide to the condition of our patient and ought to tell us when we need to interfere in some way to save our patient. The Doctor then gave the table as published by Prutz, from which he summed up that steamings, sweatings, morphia, veratrum viride, bromids, bleedings and other remedies were of little avail and showed conclusively that prophylaxis was what was needed. The Doctor further said that those cases in whose urine traces of albumin are found and who are near full term, are not to be considered serious, bnt those who show albumin in the early part of their pregnancies, and especially when the albumin increases in quantity and the urine decreases, are grave. The Doctor also placed considerable stress upon "flashes of light," irritability of the vascular system, rapid and wiry pulse together with an increasing anemia. For this latter condition the Doctor recommended first an abundance of water, then a milk diet, saline cathartics, acetate of potash, digitalis, hot baths and proper hygienic surroundings, efforts being made to carry the same beyond the seventh month; then if the conditions were not better, to evacuate the uterus. The Doctor then told how he would bring on labor: First give a bichlorid douche, then a sterilized catheter should be passed into the womb between the uterine wall and amniotic sac, tamponed and left. The Doctor tries to prevent the sac from rupturing, as he thinks this materially aids in dilating the os uteri and makes the labor more regular and natural. If the convulsions should begin, then the sac should be ruptured to relieve pressure. The Doctor then gave the record of two cases in which both mother and children were saved.

Health Report for the week ending December 24: Births, 42; deaths, 46. Contagious diseases: Diphtheria, 10; scarlet fever, 35; 1 death from diphtheria; none from scarlet fever.

Denver.

The Western Surgical and Gynecological Association.—The seventh annual meeting of the association held in this city on December 29 was a success in every respect. The members from outside of Denver who represented the States of Missouri, Kansas, Iowa, Indiana, Utah and Nebraska were delighted to find the brightest of suns over their heads from dawn until evening twilight, and they had no use for the heavy overcoats with which they had provided themselves. Five sessions were held, morning, afternoon and evening on the first day, and morning and afternoon on the second day. The attendance at all sessions was good. Almost all physicians residing in Denver and in the neighboring cities availed themselves of the opportunity and attended one or more sessions. Especially large was the attendance in the evening of the first day when the members of the Denver and Arapahoe Medical Society courteously omitting their stated meeting have joined the session in a body. In the evening of the second day a banquet was tendered the visitors by the Denver physicians, and seventy Æsculapians sat to the table and whiled away the time in intercourse and discourse until a late hour. Dr. H. G. Wetherill responded to the toast "our guests." The guests in parting did not bid adieu to the Denverians, but *au-revoir* at the meeting of the American Medical Association in June, 1898.

Statistics of Medical Libraries.—At the last stated meeting of the Denver and Arapahoe Medical Society it was resolved that the pamphlet entitled "How Every City may Secure a Medical Library," written by the secretary of the Society, Dr. C. D. Spivak, should be mailed to every county medical society in the United States. The committee appointed for that purpose have issued a circular, which may be obtained from Dr. C. D. Spivak, Denver. The plan as outlined in Dr. Spivak's pamphlet is a very simple one. Suppose there is a city in which, say, thirty or forty Æsculapians dwell in peace and harmony. Every one of them has a library which is composed of books, periodicals, reference works, etc. There are however no two private libraries in which all the books are alike. Now, in order to make all the books available to each and every physician residing in that community, it is only necessary to take the largest private library in the city as a foundation and prepare a careful card catalogue of all the books therein. Then go over all the other private libraries and add such books as are not found in the first. Thus, when all the libraries are gone over, and *all* the books are entered, the catalogue is placed in the public library or in any other place for reference. Of course the card bears the name of the owner, of whom one may obtain the book. As the circular states, this plan was adopted here in Denver and works with great success.

The Colorado Medical Library Association.—The fourth number of the *Monthly Bulletin* of the Colorado Medical Library Association is out. As far as bibliography of medical libraries is concerned, this bulletin is a unique production, probably the first and the only one ever published in the United States. In the succeeding issues, the editor promises to devote considerable space to the general question of medical libraries in the United States. The bulletin will be sent gratis to all medical libraries by addressing Dr. Henry Sewall, 23 18th Avenue, Denver, Colo.

Denver Clinical and Pathological Society.—The December meeting of the Society was held in the offices of Drs. Cover, Fleming and Leroy. Dr. Wetherill reported the use of a double drainage tube devised by himself for draining and flushing pelvic abscesses through the vault of the vagina. Dr. Parkhill reported and exhibited a case of ununited fracture of the tibia and patella in which his clamp was used with complete success. Dr. Block spoke of the absolute necessity of asepsis in the removal of foreign bodies from the cornea. He also reported the use of the drug called phioseenaminic for use in softening and absorbing corneal scars and all adventitious tissue in any part of the body. Dr. Waxham exhibited a polypus which had completely obstructed one nasal cavity and caused considerable distress to the patient. He also reported a case of croup in an adult 40 years old. Dr. Hershey reported a case of hemoptysis occurring periodically without any relation to menstruation. The attacks are usually preceded by the enlargement of the spleen and liver. Examination of the blood negative. Dr. Lyman reported a case and exhibited specimen, wherein a tumor appeared under the annnlar ligament of the right wrist following a sprain two years ago. Upon operation the tumor was found to contain a gelatinous fluid, rice bodies and a piece of tendon.

St. Anthony's Hospital.—At the annual meeting of the executive committee of the staff of the hospital the following staff was appointed for the year: Surgery: Attending, Drs. John Boice, Leonard Freeman and J. W. Neil. Medicine: Consulting, Drs. E. P. Hershey, P. D. Rothwell, C. P. Burns; consulting, Drs. John Elsner, J. N. Hall, R. B. Freeman and C. P. Conroy. Gynecology and abdominal surgery: Attending, Drs. C. K. Fleming, T. H. Hawkins. Neurology: Attending, Drs. J. W. Rothwell, S. D. Hopkins. Pediatrics: Attending, Drs. C. F. Shallenberger, J. W. Ryan. Ophthalmology and otology: Attending, Drs. R. E. Lemond, D. H. Coover. Obstetrics: Consultant, Dr. W. H. Buchtel; attendant, Drs. T. M. Burns, C. P. Van Zont. Laryngology: Attendant, Dr. Robert Levy. Dermatology: Drs. W. H. Davis and J. M. Blaine.

The Health of the City.—The total nnmber of deaths for the month of November was 137, representing a rate of 10.28 per 1,000 per year; there were thirty less than in October. Scarlet fever mortality, 3 in 98 reported cases; diphtheria, 9 in 45 cases; typhoid fever, 6 in 36 cases. Number of days with 0.91 inch or more of rainfall, 4; mean barometer, 24.72.

Washington.

Children's Hospital.—Dr. J. William Hart has been appointed resident physician of the Children's Hospital, having successfully passed the competitive examination for the position.

The Washington Dental Society.—The Washington City Dental Society has elected the following officers for the ensuing year: W. N. Cogan, president; Charles W. Appler, vice-president; W. R. Talbott, secretary; M. F. Finley, treasurer; H. B. Noble, librarian; J. H. P. Benson, essayist.

Medical Rules for the Police.—Commissioner Wight is having the police manual amended by the addition of rules to the police regulating their management of the sick and wounded found on the streets. The special instruction refers to the immediate care of persons to be removed to hospitals, who have been shot, cut or otherwise wounded, drowned or overcome by heat. Such rules and instructions have been needed in Washington for a long time.

New Rules of the Health Officer.—Health Officer Woodward has issued an order prohibiting any member of his force from entering bar-rooms and like places, while on or off duty except when required to do so officially. They are also prohibited from swearing, at least while on duty. They are also prohibited from making any unfavorable criticisms of any department of the United States or District Government. All their reports in future are to be considered confidential.

The Washington Training School for Nurses.—The Washington Training School has been reincorporated. The medical members of the incorporation are Drs. G. N. Acker

H. L. E. Johnson and D. Percy Hickling. The school, which has been closed, will shortly be in operation on new and improved plans.

Providence Hospital in Court.—The Providence Hospital, which has recently come to the help of suffering humanity in the District, by the erection of a building on its grounds for the care of minor contagious diseases, is being opposed through the courts, on the ground of the sectarian character of the incorporation, it being alleged that the appropriation of public money for the support of any religious society is a violation of the constitution of the United States. The treasurer of the United States, through the district attorney, has appeared before the circuit court and made argument in favor of the Hospital and the matter has been taken under advisement by the judge.

Medical Charity Abuses.—The Standing Committee of the Medical Association of the District of Columbia at its recent meeting notified officially the medical staffs of the hospitals and dispensaries of the District that they must endorse and comply with the recent regulations adopted by the Association on the subject of medical abuses, and make their reply to the Association not later than January 1. It is believed that the medical staffs are a unit in agreeing to these matters, but some opposition may be expected from the lay members of the different boards. The Standing Committee and the Association, however, have taken a positive stand that the rules and regulations shall be rigidly enforced, and violators promptly disciplined.

Louisville.

Appointments.—At a recent meeting of the Board of Public Safety recently appointed by the new mayor the following appointments were made, they being subsequently approved by the Mayor and Common Council: Health Officer, Dr. M. K. Allen; Superintendent of City Hospital, Dr. P. S. C. Barbour; City Physicians, Drs. J. W. Guest and Brent Palmer. Dr. W. P. White was removed to make a place for Dr. Allen. Added to the endorsements of Dr. White already given was that of the State Board of Health, which, while in session in the city, called in a body on the mayor and the board and requested that Dr. White be retained. Dr. Barbour was retained as Superintendent of the City Hospital, in which capacity he has ably served for seven years. Fifty applications were on file for the position of city physician, which pays $75 per month. Dr. Palmer, one of the successful applicants, is a son of the late Dr. E. R. Palmer, whose sad death several years ago will be recalled by many.

Spring and Summer Schools.—On January 1, the Hospital College of Medicine and the Kentucky School of Medicine begin their annual session, this being the first year of the Kentucky School existing as the Medical Department of Kentucky University.

Rodman.—Dr. W. L. Rodman having completed his course of lectures at the Medical Chirurgical College of Philadelphia, has returned to Louisville in time to begin his work in the Kentucky School.

Cincinnati.

The Public Library will hereafter refuse to supply books to persons living in houses where contagious diseases exist, and books being returned from such houses are to be disinfected or fumigated before being returned to the shelves of the library.

The Trustees of the Massilon State Insane Hospital have asked for an additional appropriation of $25.000 to furnish the buildings about completed. Of the $434,248.91 already appropriated, $365,124.75 has been spent. When completed it is estimated that it will cost about $200,000 a year to run the institution.

The Mortality Report for the week shows: Zymotic diseases, 9; phthisis pulmonalis, 16; other constitutional, 8; local, 57; developmental, 8; violence, 5; total from all causes, 102; still births, 11; under five years, 21; under one year, 12; preceding week, 104; corresponding week 1896, 117; 1895, 117; 1894, 124; annual rate per thousand, 13.09.

Societies.

The following meetings are noted:

California.—Annual of the Los Angeles County Medical Society, Los Angeles, December 17.

Indiana.—Delaware District Medical Society, Hartford City, December 21. Mitchell District Medical Society, West Baden Springs, December 27-29. The State Pediatric Society was organized December 28 at Denison.

Iowa.—Central District Medical Society, Jewell, December 21.

Minnesota.—Ramsey County Medical Society, St. Paul, December 27.

Missouri.—Kansas City Academy of Medicine, January 11.

Nebraska.—Elkhorn Valley Medical Society, Norfolk, January 4.

Ohio.—Utica Medical Society, December 30.

South Carolina.—Laurens County Medical Society, Laurens, December 30.

Texas.—South Texas Medical Association, Beaumont, December 28 and 29.

Virginia.—Academy of Medicine and Surgery, Richmond, December 21.

Wisconsin.—Central Wisconsin Medical Society, Beloit, December 28.

CHANGE OF ADDRESS.

Block, G. M., from Steele Block to the Denison Building, Denver, Colo.
Boyer, E. N., from 601½ Hamp St. to 227½ S. 7th St., Quincy, Ill.
Frink, L. J., from Bartlett to Nashua, N. H.
Heller, Chas., from 7114 Cottage Grove Ave. to 4012 Ellis Ave., Chicago, Ill.
Lemen, H. A., from Baltimore, N. C., to Augusta, Ga.
Matheson, J. S., from Chicago to Brandon, Manitoba, Canada.
W. F. McNutt, from Sutter and Montgomery to 1220 Sutter St., San Francisco, Cal.
Parker, D. L., from 559 to 835 Jefferson Ave., Detroit, Mich.
Sargent, A., from Hopkinsville to Frankfort, Ky.
Smith, J. W., from 2313 Washington St. to 2160 Market St., St. Louis, Mo.

LETTERS RECEIVED.

Ball, James M., St. Louis, Mo.; Barry, Albert, Providence, R. I.; Bogie, M. A., Kansas City, Mo.; Bracken, H. M., Minneapolis, Minn.; Burr, W. H., Philadelphia, Pa.; Bradley C. H., E. Las Vegas, N. M.

Caldwell, W. S., Vienna, Austria; Caldwell & Co., New York, N. Y.; Case, W. R., Poughkeepsie, N. Y.; Cleaves, Margaret A., New York, N. Y.; Clement, W. R., Paducah, Ky.; Cohen, I. N., La Crosse, Wis.; Cook, W. H., Coffeen, Ill.; Coolidge, Eva B. (Miss), Nicholasville, Ky.

Darnall, G. D., West Union, Iowa; Dassel, William, Honesdale, Pa.; De Schweinitz, G. E., Philadelphia, Pa.; Denison, Charles, Denver, Colo.; Dougherty, P., Chicago Ill.

Elliott, H. G., New York, N. Y.; Elson, I. A., Smithville, Ohio.

Fischer, Frank, San Francisco, Cal.; Frizelle, C. H., Rockford, Iowa.

Galloway, D. H., Chicago, Ill., (2); Garcelon, A., Lewiston, Maine, (2); Galbraith, T. S., Seymour, Ind.; Gilchrist, T. C., Baltimore, Md.; Glascock, G., Raleigh, Ill.; Green, B., Perrysburg, Ind.; Green, C. C., Beaver City, Neb.; Gerstein, M., Boston, Mass.

Hardmyer, J. D., Gays, Ill.; Hatch, Theo. L., Owatonna, Minn.; Hill, C. F., Ada, Ohio; Hicks, J. M., Indianapolis, Ind.; Hood, C. J., Elko, Nev.; Holland, J. W., Philadelphia, Pa.; Holland, T. E., Hot Springs, Ark.; Houtz, W. C., Leonidas, Mich.; Hummel, A. L., Adv. Agency, New York, N. Y., (2); Huston, J. H., Clintondale, Pa.

Ingals, E. Fletcher, Chicago, Ill.

Jones, Arthur L., Old Orchard, Maine.

Kelley, Maus & Co., Chicago, Ill.; Kelley, J. Thomas, Washington, D. C.; Klock, D. G., Mt. Carroll, Ill.; Knapp, Chas, Evansville, Ind.

Learned, John B., Northampton, Mass.; Lentz, Charles & Sons, Philadelphia, Pa.; Liston, G. M., Filley, Mo.; Little, L. L., Green Bank, W. Va.

Mattison, J. B., Brooklyn, N. Y.; Martin, F. H., Chicago, Ill.; Meyers, R. E., New York, N. Y.; Micajah & Co., Warren, Pa.; Miller, W. J., Johnson City, Tenn.; Moore, J. L., Bunker Hill, Ill.; Montgomery, Liston H., Chicago, Ill.; Moriarta, Douglas C., Saratoga Springs, N. Y; Mulford, H. K. Co., Philadelphia, Pa.; Mumaw, H. A., Elkhart, Ind; McEnaney, J. B., Ashton, Iowa; McHenry, G. M., Carmi, Ill.; McIntosh Battery and Optical Co., Chicago, Ill; McLean, Angus, Detroit, Mich.; McReynolds, John O., Dallas, Texas.

Noltage, H. P., Providence, R. I.

O'Gorman, James, Baltimore, Md.; Outerbridge, A. E. & Co., New York, N.Y.; O'Brien, R. P., Minneapolis.

Page, Charles E., Boston, Mass.; Palmer, O. W., Spalding, Neb.; Parke, Davis & Co., Detroit, Mich.; Pearce, F. S., Philadelphia, Pa.; Preston, C. H., Davenport, Iowa; Price, E. M., Palo Alto, Cal.

Ramsey, R. T., London, Ky.; Rice, I. L. G., Boston, Mass.; Riggs, J. P., Kappa, Ill.; Roberts, William, Fort Adams, R. I.

Schering & Glatz, New York, N. Y.; Shoemaker, John V., Philadelphia, Pa.; Simons, T. G., Charleston, S. C.; Smith, E. R., Toledo, Ohio; Smith, Gould, Taylorville Ill; Spratling, W. P., Sonyea, N. Y.; Stearns, F. & Co., Detroit, Mich.; Sanders, W. H., Mobile, Ala.

Thomas John D., Washington, D. C.; True, J. M., Cedar Rapids, Iowa.

Viko, E., Park City, Utah.

Wampole, H. K. & Co., Philadelphia, Pa.; Wagner, H. P., Delphos, Ohio; Ward, Milo B., Kansas City, Mo.; Weaver, H. D., Leetonia, Ohio; Wickson, David D., Milton, Ontario, Canada; Woltishek, F. J., Cedar Rapids, Iowa; Würdemann, H. V., Milwaukee, Wis.

Young, Charles S., Geneseo, Ill.

THE PUBLIC SERVICE.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from December 25 to 31, 1897.

Major Egon A. Koerper, Surgeon (Ft. Crook, Neb.), is granted leave of absence for one month, to take effect on or about Jan. 4, 1898, with permission to apply for an extension of two months.

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ORIGINAL ARTICLES.

WHAT ARE THE CHARACTERISTICS OF A TRUE CARDIAC TONIC? AND WHAT ARE THE PHYSIOLOGIC DIFFERENCES BETWEEN A TONIC AND A STIMULANT?

Presented to the Section on Physiology and Dietetics, at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

BY N. S. DAVIS, M.D.
CHICAGO, ILL.

That all morbid conditions, both of function and structure, are deviations from the normal or physiologic conditions of living matter, probably no thoughtful physician will deny. If the proposition is true, then the basis for the study of disease is a correct knowledge of the actual physiology of all parts of the living body.

The more accurate and complete our knowledge of the structure and function of any given part, and its natural relations to all the other parts of a living body, the more readily we can appreciate all deviations from the physiologic standard of action or condition so far as to constitute disease.

If a correct knowledge of the natural or healthy structure and functions of any given living part is the proper basis for studying the departures from that standard of health which may constitute disease, it is equally true that the same knowledge must constitute our basis for determining the action of all medicinal agents. Therefore, if we would clearly appreciate the important characteristics of a true cardiac tonic we must first comprehend the complete natural mechanism and functions of the heart and its physiologic relations to all other parts of the living body of which it is a part.

All lexicographers agree that a *tonic* in medicine is an agent or medicine that is capable of "increasing the strength and vigor of the animal system;" or, as I would prefer to express it, an agent or medicine capable of *increasing the natural functions* of a part or of the whole of the living body. The natural structure of the heart is chiefly muscular, supplied with blood vessels, and apparently three varieties of nerves; and its physiologic function is to aid in the circulation of the blood. Such aid is rendered by the regular rhythmic contraction and relaxation of the muscular structure of the heart by which its cavities are successively filled and emptied in given time and with given degree of force. And it might be claimed that the essential quality or characteristic of a cardiac tonic is such an agent or medicine as would increase the tone and efficiency of the muscular contractions without unduly increasing their frequency. But both clinical and experimental observations have clearly shown that the co-operation of four conditions are essential for maintaining the full normal efficiency of the heart in aiding the circulation of the blood. These conditions are: 1, the natural tone or contractibility of the cardiac muscular structure; 2, the presence of healthy blood or some albuminous fluid of similar composition; 3, the natural sensibility of the three sets of nerves co-operating in regulating the muscular contractions and relaxations of the heart; and 4, the presence of a due proportion of oxygen in the arterial blood or the fluid supplying the left cavities of the heart. If the co-existence of all these conditions is necessary to the continued efficiency of the function of the heart in circulating the blood, it must be apparent that the characteristics of every true cardiac tonic must be both positive and negative. That is, they must be capable of positively sustaining or increasing the efficiency of the cardiac muscular contraction and the sensibility of the several nervous structures, while negatively they must not so alter the constituents of the blood as to impair their oxygen receiving and distributing capacity, nor impair the depth and efficiency of respiration by lessening the sensibility of the respiratory nerve centers, nor so far lessen the sensibility af the inhibitor nerves of the heart as to allow the cardiac contractions to become too rapid or irregular. For any agent that increases the frequency of the cardiac contractions above the natural standard, necessarily leaves less time for the ventricles to fill in diastole, and consequently less blood is sent out by each systolic action and correspondingly less efficiency is given to the whole circulation. This is illustrated in exophthalmic goiter and in all those diseases characterized by marked frequency of cardiac action, and by cutting the vagus or inhibitor nerves of the heart in animals. And this leads us to the exact physiologic differences between a cardiac tonic and a cardiac stimulant. The first increases the tone of the cardiac muscles and the efficiency of their contractions without increasing their frequency beyond the normal; but the latter simply increases the excitability and frequency of cardiac action without necessarily increasing either its force or efficiency. And yet, throughout the greater part of our medical literature, the words tonic and stimulant are often used interchangeably or as synonyms, and nowhere more frequently than in reference to remedies for influencing the heart.

Perhaps no other physiologic fact has been more completely established than that both nerve sensibility and muscular contractibility in living animals are directly dependent upon the presence of oxygen in the blood or fluid circulating in the vessels. Consequently, the continuous oxygenation and decarbonization of the blood is not only essential to the continuance of life, but any diminution of the process below the physiologic or natural standard of health lessens both nerve sensibility and muscular contractile force.

Hence it was stated as one of the characteristics of a cardiac tonic, that it should not lessen this process of oxygenation, either by lessening the efficiency of respiration or by so altering the constituents of the blood as to lessen their capacity for receiving the oxygen from the pulmonary air vesicles and distributing it through all the tissues. This view has hitherto received far less attention than its practical importance demands. For there are in general use a considerable number of remedies that cause such changes in the blood as to directly lessen the internal distribution of oxygen and lessen nerve sensibility and muscular strength.

A few years since, when it was claimed that the chief danger in all febrile affections was the pyrexia or high temperature, and we were deluged with antipyretics largely consisting of coal-tar preparations, it was soon demonstrated that nearly all of them exerted their antipyretic influence by directly diminishing the reception and internal distribution of oxygen with corresponding cardiac weakness. Then followed the discoveries in bacteriology and the toxic influence of ptomains, toxalbumins, etc., and "heart failure," instead of pyrexia, was proclaimed as the chief source of danger in all the acute febrile and inflammatory affections. So true is that almost every work on the practice of medicine, issued during the past ten years, states in general terms that "progressive cardiac weakness" constitutes the chief danger to life in diphtheria, pneumonia, and nearly all the continued and eruptive fevers. And in equally general terms it is stated that to counteract such cardiac weakness "stimulants should be given early" and freely; often without indicating what stimulants are best or in what doses they should be given. But whenever any particular stimulants are mentioned, pretty uniformly, alcohol, strychnin, digitalis, ether and musk constitute the list. The real cause or causes of the dreaded heart weakness are not well ascertained or definitely stated, and consequently we have no rational or physiologic guide for the choice of remedies.

Two decades since, it was very generally attributed to the pyrexia, but now it is very generally said to depend on the action of the poison producing the disease or, still more, on the "toxic action of the poisons produced in the course of the disease."

And yet, what the poisons thus evolved during the progress of acute febrile affections capable of progressively weakening the heart, are, we are not informed except as they are called leucomains, ptomains and toxalbumins. Neither is it claimed that any of the medicines mentioned as cardiac tonics or stimulants are capable of either preventing the formation, or of neutralizing the action, of these poisons. For one of the most recent and authoritative writers truthfully declares that: "We are still without an agent which can counteract the gradual influences of the poisons which develop in the course of acute febrile diseases."

Perhaps if we keep in view the fact that the living body, in health, is constantly evolving poisons or toxic agents which, if retained in the blood and tissues, as certainly produce general functional disturbances and cardiac weakness as do any of the specific causes of general febrile diseases; and that they are prevented from so doing by the processes of oxidation and elimination, it may point us more directly to the real causes of self-poisoning during the progress of acute diseases, and also to the most efficient remedies. If it is true that a large part, if not all, of the toxic agents or poisons being constantly formed in the healthy body are destroyed by processes of oxidation and leucocytic or cell activity, is it not more than probable that the poisons developed during the progress of febrile diseases accumulate and produce their depressing effects from diminished oxidation and cell activity; such diminished oxidation and cell activity being caused by the action of the primary cause or causes of the febrile disease? Among the most constant symptoms or conditions of acute diseases are, diminished efficiency of the respiratory process through which oxygen is supplied for absorption by the blood, and diminished elimination of the products of oxidation and cell activity. On the other hand, all those agencies that promote the oxygenation and decarbonization of the blood and promote cell activity, correspondingly improve the action of the heart and the efficiency of all the excretory functions. And all those who are at the present time treating febrile affections hydrotherapeutically claim, as the most marked effects of the frequent application of water, whether by spraying, packing or full baths, are increased tone of the cardiac and vascular circulation, with increased cell activity and elimination of the products of internal oxidation. But to gain these advantages there must be also free respiration of fresh air, to furnish the oxygen necessary for sustaining both nerve sensibility and muscular tone, as well as the processes of oxidation. Hence the declaration of M. Robin as the result of his numerous experiments and analyses, that "acts of oxidation are defensive processes of the organism in its struggle with bacteria, and therefore that the physician should favor, in every possible way, the absorption of oxygen in every infection, especially when there are typhoid complications," is one of the most important and far-reaching physiologic and therapeutic announcements on the pages of our current medical literature. It points us to the true pathologic effects of the pathogenic bacteria or their toxic products, in lessening the oxidation processes and cell activity in the blood, and the progressive cardiac weakness on the one hand; and on the other, to the use of such remedies as will either neutralize the toxic products or promote their oxidation and elimination. And to accomplish the latter we must have efficient respiration to supply the oxygen and capacity of the blood to receive and distribute it through the tissues and organs of the body. Consequently, the most efficient remedies to prevent or arrest the dreaded heart failure in all general febrile diseases, are such as directly increase the sensibility and action of the respiratory and vasomotor nerves and promote natural cell or leucocytic and secretory activity. It is very generally agreed that strychnin, digitalis, strophanthus, cactus and convallaria promote the efficiency of both respiration and circulation by their direct action on the respiratory and vasomotor nerve structures, and, at least indirectly, promote cell activity and secretion, while fresh pure air, judicious hydrotherapy and simple nourishment, add still more to the efficiency of the internal processes of oxidation and external excretion. On the other hand, not only nearly all the internal antipyretics, but all the well-known anesthetics, as chloroform, ether and alcohol, directly diminish the sensibility and action of the nerve structures generally and of the respiratory and vasomotor centers especially; and at the same time they equally diminish the leucocytic and cell activity and the processes of oxidation and elimination of toxic products. That the presence in the blood of either chloroform, ether or alcohol, or of all combined, directly lessens the efficiency of respiration in proportion to the quantity present, impairs vasomotor activity and retards all the metabolic processes, has been so fully proved both by experiments and clinical observation as to need no further proof. On what possible basis, then, can we continue to class alcohol and ether as cardiac tonics or stimulants, in direct connection with strychnin and digitalis, to be given to the same patients on the same days and sometimes at the same hours, when the first two are so directly antagonistic in their physiologic action to the two latter? But my purpose in trespassing upon your time with this brief paper is simply to invite more attention to the fact that a true cardiac tonic must be an agent or remedy that not only increases the tone and efficiency of the heart, but also sustains, at the same time, cell activity, internal oxidations and respiratory and vasomotor nerve sensibility.

DISCUSSION.

Dr. Boardman Reed of Philadelphia—I have been much pleased by the paper of Dr. Davis, and especially by the emphatic manner in which he condemns the prevalent abuse of stimulants. Indeed, I have been for years watching with admiration his sturdy battle against this great evil. It seems to me most fortunate that a veteran of his long experience and distinguished ability should come forward as the uncompromising foe of such a crying abuse. Therefore, I regret the more at being obliged to differ from some of the views advanced by Dr. Davis in the paper just read. It seems to me that in discussing the place of alcohol in therapeutics a broad and clear distinction should be made between stimulants and tonics. Alcohol has no claim whatever to be considered a tonic. Indeed, its prolonged use always tends to develop cardiac weakness, as every clinician knows. But as a quick diffusible stimulant in emergencies, it is often a valuable help which we ought not to be deprived of.

Another point not touched on by the writer of the paper is that even drugs which are undeniably cardiac tonics, such as digitalis and strophanthus, may not be depended on to produce their tonic effects when they have been long administered. Experience shows that it is best to alternate these, giving one for a week or two and then changing to another of the group.

Dr. John A. Cutter of New York—I desire to thank Dr. Davis for his valuable paper. It is not at every meeting that one can learn from so old and careful a student as the reader. My experience with heart tonics is somewhat varied. I can thoroughly agree with Dr. Davis as to the value of proper breathing and fresh air. I have seen a case within an hour of death revive simply by the opening wide of the window and the air pouring in. Again, the use of oxygen or oxygen compounds as prepared by reliable manufacturers is of value in cases of heart weakness. When one considers that in many cases of sickness the blood has become ropy and sticky from an increase of the fibrin filaments, and that the heart's labor is thereby increased by having to pump this self-same blood through the capillaries, which are only one three-thousandth part of an inch in diameter, having a leeway of one forty-eight thousandth of an inch for red blood corpuscles, the value of plenty of drinks of distilled water or water that has but five to ten grains of salt to the gallon can be easily imagined. I make the statement from experience and also as *contra* to some of the teaching in heart therapeutics which obtains at the present, that we should diminish the amount of fluids to diminish the work of the heart. If by giving plenty of fluids we dissolve the fibrin filaments and relieve the stickiness, the heart's labor is greatly diminished. Indeed, in consumption and rheumatism and thrombosis, I have seen the left side to be larger than the right, the heart having increased in size because of the extra work put upon it by this abnormal sticky, ropy blood stream and, after treatment, sometimes within two months' time, the heart is decreased in size and the left chest wall has come down to its normal condition. I consider this fact in medicine, which is known to others, to be one of the most astounding things to be met with because of its inherent value to the human race. Here again, then, drinks of hot water become heart tonics because they relieve the work of the heart. My teacher in medicine, Dr. Samuel B. Ward of Albany, was very positive in advising us students to relieve the liver in cases of heart complaint. It is only a few weeks ago that I found one of my patients in my office, a man who had been a heavy drinker for years, very obese, and who suffered from stone in the kidney and who had been greatly relieved of his obesity and stone formation by careful treatment; the same was complaining of dizziness and on examination of the pulse I found his heart beating along weakly, at times quick and then slow. He admitted that he had been to an Elks' dinner the night before and had drank considerable liquor; he also had been overworking and lifting. Now, you know that in these "weak days" one does not often get hold of a strong robust patient to drug heavily; they all need lifting up. This man, outside of his weakness of that day, was powerful in chest and arms and could stand a rough and tumble fight such as he used to experience in the days when he was a Tweed politician. I said to myself, He is "my meat," and gave him one-twentieth grain of strychnia to steady his nervous system and heart, and three fourths of a grain of podophyllin and three-fourths of a grain of aloin. I expected that he would report at the office the next morning in a criticising state of mind. Instead of that he came in about noon time, just twenty-four hours after I prescribed for him, as happy and feeling as fine as if he was a boy. The aloin and podophyllin acted on him twelve hours after exhibition and gave him a very liberal unloading of the liver; here again was a heart tonic by detergents. As to digitalis, I could not have eased my wife in the last months of her life without this powerful medicine. She died of heart failure, having a normal but small heart and small cavities in both lungs which had been healed for seven years. For a year or more before her death, she used digitalis in one form or another. I got it all from Frazer's preparations in tablet form and gave digitalin, one-sixtieth of a grain, digitalis powd. one-fourth grain, and digitalis fluid extract one-half minim. I found that the last named was the most powerful of any of the preparations. She had lost her appetite some three years before her death and it was hard work to get nourishment into her. The cough would come on when she was tired, and in the last six or eight months of her life she suffered at times acutely from pain about the heart and down the left arm; I suppose a true form of angina pectoris, although I do not remember of her suffering from the terrible gasping pain, if I may so term it, which sometimes comes in true angina. Nevertheless, the pain in her left arm was severe and she said to me once after using the fluid extract one-half minim tablets, "That must be very powerful medicine to help me." It must be remembered in her case that she had careful nursing, drinks of the best of water and the best of food, as far as she could eat it; hence, she bore the digitalis a great deal better than if she had had no systemic treatment. I give this evidence of the value of digitalis because it was a great friend to her as well as to me.

Dr. A. E. Miller of Boston—As a rule, heart stimulants are less satisfactory in their results than heart tonics. In many cases where stimulants are administered the heart is already working too fast, and the stimulant increases the difficulty; while heart tonics, as digitalis and nux vomica, in small doses give more power, increase the force and diminish the frequency. This is especially the case in pneumonia and typhoid fever. When stimulants are freely used in these cases the mortality is increased. For several years I have been paying particular attention to the results of alcoholic stimulants in typhoid fever and have noticed that physicians who use alcohol freely lose many of their patients, while those treated without alcohol all recover. I have not known of a single death from typhoid fever for the past twenty years when the patient was treated without alcoholic stimulants.

Dr. Horace P. Makechnie of Somerville, Mass.—Sometimes when the heart is distended by pain, shock or distress of any kind, either mental or physical, sedatives such as small doses of morphin may act like a cardiac tonic by antagonizing the depressing forces. Has the reader noticed any such effect?

Silver Nitrate and Ergotin in the Treatment of Pulmonary Tuberculosis.—Before the Section in Medicine of the Twelfth International Medical Congress, Dr. Crocq of Brussels (*Progrès Médical*, September 4), maintained that tuberculous disease tended to end in recovery rather than in death, and that a fatal termination was due to an inflammation which led to a propagation of the tubercles. If this inflammation could be prevented or cured, there would be more cases of recovery. According to the author, we have no remedy against the bacillus; creosote does not kill it, and there are some inconveniences about its employment, especially as regards the management of the stomach. He has employed with much success, even in cases that were grave or complicated with diabetes, ergotin and silver nitrate. The latter, he says, acts very beneficially on the stomach.—*New York Medical Journal.*

TRANS-PERITONEAL LIGATION OF THE ILIAC ARTERIES.

WITH REPORT OF SEVEN NEW CASES AND STATISTICS OF TWENTY-NINE OPERATIONS.

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A successful and eminently satisfactory operation for iliofemoral aneurysm having impressed the writer with the ease, accuracy and general superiority of the intra-abdominal or "transperitoneal" method for ligation of the iliac arteries, he has collected the published cases, twenty-two in number, to which, through the generosity of friends, he is able to add six hitherto unpublished cases, making with his own case a total of twenty-nine shown in the table.[1]

Of the twenty-nine cases, twenty-two recovered and seven died. There were twenty-five different operators. Seventeen operations were performed by fifteen American surgeons. All of the priorities as to first operations and first successes rest with the Americans. To this country must also be credited the classic paper of Dennis (*Medical News*, Nov. 11, 1886), which at once placed the procedure upon an enduring basis.

Among the seven deaths, none were attributable to abdominal complications. The only instance of such complication was a partial obstruction of bowels in one case which necessitated reopening of the abdomen on the sixth day, but recovery nevertheless took place. The low mortality is remarkable when it is remembered that many of the cases were partially eviscerated prior to the introduction of the Trendelenburg position which has so much facilitated the operation. It is further remarkable, in view of the many operators and the fact that nine operations were done before 1890. Prior to that date five recovered and four died. Since 1890 seventeen have recovered and but three have died.

Common iliac artery.—Five cases. Of these four recovered and one died. The death was from gangrene. The first operation was by F. Lange, in 1883, and resulted fatally. The second operation and first success was by the same surgeon and in the same year. The three remaining successful operations were by Lucas, in 1889; Thornton, in 1894, and Stevenson, in 1896.

Internal iliac artery.—Nine cases. Of these seven recovered and two died. One death was from nephritis on the sixth day, the other from recurring hemorrhage from a septic wound of the buttock on the thirteenth day. The first operation was by Le Roy McLean, in 1872. It was not successful. The first success was that of Dennis, in 1886. Two were double simultaneous ligations; one by Dennis in 1886 for double gluteal aneurysm, with death from nephritis on the sixth day; the other by Kelly, in 1893, for uncontrollable hemorrhage during hysterectomy for carcinomatous uterus, with a successful result.

External iliac artery.—Fifteen cases. Of these eleven recovered and four died. Two of the deaths were due to subsequent gangrene of the extremity, one to shock and hemorrhage preceding the operation, and the fourth to shock from loss of a "gallon of clots" from an aneurysm which was opened after ligation of the supplying vessel. The first operation was performed by Richardson in 1886, with fatal result. The second operation and first cure was by Stimson, in 1889. Makins ligated the external iliac on one side for aneurysm, in 1892, and upon the same patient a year later performed the same operation on the opposite artery, for a similar condition. The patient recovered also from the second operation.

A considerable correspondence with surgeons of this country and Great Britain has convinced the writer that the general opinion among operators is decidedly in favor of the transperitoneal route for all ligations above the lower portion of the external iliac. When the latter portion can be tied by the old extraperitoneal method it continues to be preferred. But if the disease involves any tissue above Poupart's ligament and, in any case, for higher ligations, almost all are emphatic in condemning the frightful old-fashioned incisions from the groin and loin; some going so far as to exclude the teaching of them from their lectures to students. The Trendelenburg position is a great aid in these operations and does away with the risks of evisceration and strong pressure by retractors that was considered necessary in some of the earlier operations. But neither this position nor injurious pressure are necessary in the average case, although the elevated pelvis undoubtedly renders the procedure more easy. Under scarcely any possible circumstances could evisceration be justified today.

Incision for low ligations should be lateral. The semilunar line has been the favorite site, up to the present time, for the external iliac, but in this case, perhaps, it will be found that the ligation can as well be performed through an adaptation of McBurney's muscle-splitting incision for appendicitis and thus do away with all danger of subsequent hernia. In case of ligation of the internal or common iliacs the median incision has in all cases been found best. Suture of the peritoneum overlying the sheath of the vessels has not been found essential, although probably desirable if the condition of the patient should permit.

CASES HERE FIRST PUBLISHED.

Case 1.—Dr. LeRoy McLean of Troy, N. Y. (Personal communication through Dr. C. B. Herrick.) "In 1872, a female, aged 50 years, received a stab wound in the right buttock, which was followed by profuse hemorrhage. Her attending physician closed the wound with a number of sutures, thereby stopping the bleeding. The same remained closed, but about two weeks thereafter a swelling appeared in the gluteal region, for the relief of which she presented herself at the Troy Hospital, coming into the service of Dr. McLean. He found an aneurysm which, from its location and the situation of the stab wound, he decided to be of the internal iliac artery. He thereupon opened the abdominal cavity in the median line, just above the pubes, making a short incision, pushed the intestines aside and coming upon the internal iliac artery, slit through the posterior layers of the peritoneum, and passed a ligature about the vessel by means of an aneurysm needle. The case went well; the abdominal wound healed promptly; no peritonitis or rise of temperature was noted. After about thirteen days the old stab wound suddenly broke out afresh and hemorrhage took place to a considerable amount. Despite treatment directed to the prevention of the same by pressure and ordinary means used over the site of the tumor, the hemorrhage continued from time to time until the patient succumbed through exhaustion."

"Postmortem revealed the artery cut off close to its emergence from the pelvis, and the presence of a good-sized aneurysmal sac. Silk was the material used for the ligation, and chloroform the anesthetic."

Case 2.—Dr. Thomas G. Richardson of New Orleans. (Extracts from letter of Dr. R. Matas of New Orleans.) The patient, an adult male, was brought to the Charity Hospital in the winter of 1886 or 1887, wounded in the thigh high up in Scarpa's triangle. He was much exhausted from shock and hemorrhage. To control bleeding Dr. Richardson made an incision directly over the course of the external iliac, cutting through abdominal wall and peritoneum and secured the external iliac between its origin and Poupart's ligament. The man died some time subsequently, of shock and the effects of previous loss of blood, presumably.

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[1] One case, No. 29 of the table, has been added since the paper was read.

Case 3.—Dr. George R. Fowler of Brooklyn. (Extracts from records of Methodist Episcopal Hospital of Brooklyn.) M. C., aged 16, was admitted to the hospital July 3, 1893, with the following history: About four years prior to admission he suffered from double suppurative inguinal adenitis. The left side was incised; the right opened spontaneously. Shortly after this he noticed that the right lower extremity was larger than the left. This enlargement increased steadily for six months, since which time the relative proportions of the two limbs have remained stationary. He suffers no pain; the inconvenience present is mainly due to the increased weight of the limb. Examination shows the right limb to be the seat of a uniform swelling, as compared with the left. The skin presents the coarse or exaggerated appearance of elephantiasis. The swelling does not pit upon pressure. Measurements: Left, or normal leg; above ankle, 8 inches; at knee, 12; thigh on level with perineum, 16.5 inches. Right, or diseased limb; above ankle, 10.5 inches; at knee, 16; thigh at level of perineum, 21.5 inches. Operation, July 11, 1893. Patient was etherized and placed in Trendelenburg's position. The cavity of the abdomen was opened by a three-inch vertical incision in the right linea semilunaris. The intestines were held back, the external illiac artery identified, the posterior reflection of the peritoneum incised, the vessel isolated and surrounded by a catgut ligature. The vein was found lying to the outer side of the artery. The patient suffered very slightly from shock. The limb was bandaged in cotton and kept elevated. He suffered no inconvenience from the operation and at no time was there sufficient embarrassment to the circulation to cause anxiety. He was discharged cured on August 28, at which time the measurements were as follows: Right calf, 12.25 inches; knee 13.25; thigh, 15 inches. Left calf, 11.25 inches; knee, 12.5; thigh, 15 inches."

Case 4.—Dr. W. Joseph Hearn of Philadelphia. A. B., aged 43 years, was admitted to the Jefferson Hospital in June 1890 suffering from an aneurysm of the popliteal artery. The patient was of slight build and light complexion, a painter by occupation. His general health had been good and he had never contracted syphilis. None of his relatives had ever suffered from tuberculosis. The tumor was the size of a small orange, impeded motion and caused loss of sensation. The femoral artery was ligated with silk, in Scarpa's triangle. From this operation the patient made a good recovery. The tumor gradually subsided and he left the hospital in four weeks, collateral circulation being well established. In August 1893 he returned to the hospital with a pulsating tumor in the left pelvis. He had suffered with some pain and discomfort for three months prior to his again coming under observation. Examination proved the tumor to involve the left external iliac artery, apparently through its entire extent. The size of the mass and the uncertainty as to the length of the artery involved led to a choice of the transperitoneal method. An incision four inches long was made in the left linea semilunaris. The patient being in the Trendelenburg position, by means of broad retractors protected with gauze, it was possible to keep the intestines out of the way and to secure an excellent exposure not only of the tumor but of the aorta, common and internal iliac arteries. Two inches of the external iliac was found uninvolved and, therefore, a ligature was placed upon it just below the bifurcation of the common iliac artery. With two pairs of forceps the postperitoneal membrane was slightly torn over the artery and an aneurysm needle armed with stout silk was passed from within outward. Previous to passing the needle, the grooved director was employed to free the vessel from its attachments. The peritoneum overlying the vessel was approximated by a single catgut suture. The patient made a good recovery. The temperature never passed 100 degrees. He had some distress from distention of bowels and retention of urine, however. Three years later he was in excellent health and able to work at his trade. The left limb was somewhat atrophied and a little weak.

Case 5.—Mr. Frank T. Paul of Liverpool, England. J. E., a man aged 38 years, a gas-fitter by occupation, was admitted to the Liverpool Royal Infirmary June 13, 1895, complaining of a "lump having formed in his right groin." His family history was negative, while his six children were all healthy. He contracted syphilis when 19 years of age, but the only signs of that disorder remaining when he came under observation were evidences of old iritis. Six months before admission he had a "running abscess on the left side of his seat which healed up of itself." One month before entering the hospital he helped to lift a piano and thought that he had strained himself. Ten days afterward he noted a slight pain in his right groin and a few days later observed a swelling. The tumor had not increased in size since he first noticed it and caused very little local pain. On inspection, an ill-defined pulsating swelling could be seen in the patient's right groin, lying in Scarpa's triangle and extending downward three and one-half inches from Poupart's ligament. Its greatest breadth was about two inches. On palpation the tumor was felt to be hard, elastic and pulsating. Its shape was fusiform. Expansile pulsation was very marked and a systolic bruit could be detected with a stethoscope. The heart sounds were normal; the kidneys and other organs were likewise in a healthy condition. On June 17, an incision four inches in length was made from above downward along the outer border of the right rectus muscle, taking care that it was placed well outside the deep epigastric artery. The tissues of the abdominal wall having been divided, the intestines were displaced from the iliac fossa and retained clear of the seat of the operation by a sponge held by an assistant. The position of the external iliac artery became at once apparent and it was very easily ligatured through a small opening in the posterior peritoneum. It was tied with ordinary carbolized catgut and the small opening in the peritoneum over it was closed with two fine sutures of the same material. The artery where ligated was healthy, and there was no bleeding whatever into the peritoneal cavity. The external wound was closed with fishing-gut sutures passed, as usual, through all layers, particular care being taken not to perforate or include the deep epigastric vessels. The limb was wrapped in cotton wool, lightly bandaged with a soft bandage and placed upon a pillow. On June 18 the limb was warm and of good color. On July 2 the abdominal wound was healed and there had been no complications. The aneurysm was hard and no pulsation could be detected in it or in any of the vessels of the leg or foot. On July 12 pulsation had appeared in the dorsalis pedis artery. He was permitted to be up and about. On July 27 he was discharged well, except that there was a slowly diminishing hard tumor in the place of the aneurysm. In January, 1897, the patient was again seen by Mr. Paul, who found that he had increased twenty eight pounds in weight since the operation, and that he was able to work at his trade without any disability whatever. The right leg was then a little weaker and smaller than its fellow and the pulsation in its arteries was not equal to the left extremity. Still this gave him no annoyance, and he was able to put in full time at arduous work.

Case 6—Thomas S. K. Morton of Philadelphia—J. R., colored, aged 48 years, by occupation a waiter, was admitted to the Philadelphia Polyclinic Hospital, April 4, 1895, suffering with a large swelling in the left groin. His family history was negative. When 17 years of age the patient had syphilis and was under treatment a full year. From that time he had remained in excellent health until one year prior to entering the hospital. Then, a short time after straining himself in lifting a heavy piece of iron, he noticed pain and tumefaction in the left groin. The tumor had steadily enlarged. It was the size of an orange and situated mostly below Poupart's ligament in the line of the common femoral artery. Above the latter ligament there was also a considerable expansion of at least one inch of the external iliac artery. The growth presented all of the signs of aneurysm. The leg on the affected side was quite edematous. The man was put to bed with the left leg slightly elevated and instructed to stop the circulation through the aneurysm occasionally, by pressure upon the external iliac through the abdominal wall. In doing this he was very successful. On April 8, under ether anesthesia, a four-inch-long median abdominal incision was made below the umbilicus. A strong retractor was introduced upon the right side of the wound and the intestines held away from the vessels on the left side. The external iliac artery and vein were then readily brought into view and identified. The peritoneum overlying the sheath was divided with knife and forceps to the extent of one inch. Then an aneurysm needle was carefully insinuated between the artery and vein, carrying through a single loop of silk. By means of the loop, three strands of medium size silk were carried around the artery without any especial trouble. Everything and every manipulation was in plain view throughout. The three strands of silk were next tied down one by one upon the vessel, after the manner of tying what Ballance and Edmunds have termed the "stay" knot, that is, each ligature is double twisted and tied firmly down for the first tie; the second tie is made from the three or more ends on each side tied down as if one strand. This gives a certain occlusion of the vessel by bringing a considerable extent of its walls into firm contact.[2] The site of the ligature was about three quarters of an inch below the bifurcation of the common iliac. The peritoneum over the ligature and sheath was not sutured as it naturally fell together along its divided edges. The

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[2] Ligation in Continuity by Ballance and Edmunds, London, 1891.

Number.	Surgeon and date of operation.	Reference.	Sex, age and color.	Disease.	Incision.	Vessel Ligated.	Material of Ligature.	Treatment Peritoneum over sheath.	Complications.	Result.	Remarks.
1	W. F. Stevenson, 1895	Lancet, Jan. 25, 1896, p. 224.	M 35	Diffuse aneurysm, external iliac and common femoral.	Median 1 inch below umbilicus to 1½ in. above pubis.	Common iliac.	Silk.	...	None.	Cured.	Later. Incision into aneurysm and clots, 2½ pounds, turned out.
2	F. Lange	Trans. N. Y. Surg Soc. 1883.	M About 40	Large aneurysm above Poupart's ligament. Locomotor ataxy.	Median.	Common iliac left.	...	...	...	Cured.	...
3	F. Lange	Personal Communication	M About 60	Large aneurysm above Poupart's ligament.	...	Common iliac left.	...	...	Gangrene of extremity and sepsis.	Died.	High amputation of thigh for gangrene.
4	E. C. Lucas, 1889	British Med. Jour. Nov 5, 1892, p. 1033.	M	Aneurysm external iliac.	Median.	Common iliac "performed with ease."	...	...	None.	Recover'd.	...
5	J. K. Thornton	British Med. Jour. Feb. 29, 1896, p. 518	M	Aneurysm external iliac artery. Traumatic left.	...	Common iliac artery.	Silk.	...	Great amount abdominal and omental fat.	Recover'd.	Tied by touch, not seen.
6	Le Roy McLean, 1872	Personal Communication by Dr. C. B Herrick.	F 50	Aneurysm right external iliac artery following stab wound of buttock.	Short, median "just above pubes."	Internal iliac (right)	Silk.	...	None in abdomen or abdominal wound.	Died.	Recurring hemorrhage thro' stab wound of the buttock. Postmortem: Artery cut off close to emergence from pelvis. "Good size aneurysmal sac."
7	Frederick Treves	Lancet, June 4, 1892, p. 1241.	M 18 W	Sarcoma of buttock.	Median.	Int. iliac "an extremely simple matter."	...	...	None.	Recover'd.	Remarkable shrinkage of growth and diminution of pain. Able to walk for 10 mos. Died in 14 mos.
8	L. L. Williams, Sept. 3, 1891	New York Medical Jour., Aug. 20, 1891, p. 211.	M 35	Gluteal aneurysm left.	Median, umbilicus to pubic bone.	Int. iliac left.	Silk.	...	None.	Recover'd.	Died of heart disease 10 weeks after operation.
9	George Wherry	Lancet, Vol II, 1893, p. 156.	M 21	Sarcoma—pulsating—upon upper posterior and outer part of left innominate bone.	Median.	Int. iliac, artery and vein, left.	...	...	Much swollen vein.	Recover'd.	Tumor shrank, pain much less, no pulsation.
10	Thomas Annandale, Oct 1, 1893.	Edinburgh Hospital Reports, 1894, p 511	M 22	Wound gluteal artery, septic. Repeated hemorrhages, left.	Linea semi-lunaris, left 5 inches	Internal iliac.	Catgut.	...	None.	Recover'd.	...
11	H. A. Kelly, Oct. 1893	Bull. Johns Hopkins Hospital, April, 1894, p. 53.	F 37	Hemorrhage during extirpation carcinoma uterus.	Median.	Both internal iliac arteries.	...	...	None.	Recover'd.	No carcinoma observable up to time of publication.
12	F. S. Dennis, Feb. 18, 1886	Medical News, Nov 21, 1886, p. 565.	F 60	Double gluteal aneurysm. Spontaneous.	Median, umbilicus to pubes.	Both internal iliac arteries.	Catgut.	...	Little pus about one ligature. no peritonitis.	Died 6th day.	Intestines taken outside abdomen, suppression of urine, chronic nephritis.
13	W. L. Chew, June 15, 1886.	Medical News, Nov 20, 1886, p. 565	M 46 C	Diffused aneurysm spontaneous gluteal right.	Lateral.	Int. iliac right.	Silk.	"Approximat'd"	Small stitch hole abscess.	Recover'd.	Intestines taken out of abdomen.
14	F. S. Dennis, Sept 8, 1886	Medical News, Nov. 20, 1886, p. 565	F 18	Gluteal aneurysm and aneurysmal varix, spontaneous, left.	Median above umbilicus to 2 in. above pubes.	Int. iliac left.	Catgut.	...	Much fat in abdominal wall. Acute albuminuria (15 per cent.) after operation for few days.	Recover'd.	Intestines removed from abdomen.
15	N. P. Dandridge, Oct 1896.	Med. News, April 3, 1897, p. 439	M 39 C	Aneurysm left groin 5 in. long 3½ in. broad. Occupied Scarpa's triangle. Reached upward to Poupart's ligament and outward to spine of ilium, also had invaded iliac fossa.	Trendelenburg position 4 in. median.	Ext. iliac (left).	Kangaroo tendon.	Sutured with fine silk.	None in abdomen or abdominal wound.	Cured.	Sac opened by 6 in. incision and emptied. Had ruptured. One-third sac dissected out. Much bleeding from below. Ligatures to vessels. Iodoform gauze packing. Sloughing and tedious healing. No sensation anterior portion thigh. Inability to extend leg upon thigh.
16	Frank T. Paul, June 17, 1897	Personal communication.	M 38	Aneurysm Scarpa's triangle, right side. Extended 3½ in. downward from Poupart's ligament. Two inches in breadth.	Four inches along outer border right rectus muscle.	Ext. iliac "very easily ligatured."	Carbolized catgut.	Suture fine carbolized catgut.	None.	Cured.	Result perfectly satisfactory.
17	T. G. Richardson, 1886 or 1887	Personal communication by Dr. R Matas	M Adult	Wound high up in Scarpa's triangle.	Directly over course of external iliac.	External iliac.	...	...	...	Died.	Shock and previous hemorrhage caused death shortly after operation.
18	Geo. R. Fowler, July 11, 1893	Personal communication	M 16	Elephantiasis right leg from groin downward following suppurative inguinal adenitis.	Trendelenburg's position, 3 in incision right linea semi-lunaris.	External iliac "easily carried out."	Catgut.	...	None.	Cured.	...
19	L. A. Stimson, April 2, 1889.	Trans. N. Y. Surg. Soc., April 24, 1889.	M 36	Ilio-femoral aneurysm, right side. Extended from one inch above Poupart's ligament to five inches below. Three and one half inches in transverse diameter.	Longitudinal along outer side rectus muscle.	External iliac.	Catgut.	...	None.	Cured.	...
20	W. Joseph Hearn, 1893	Personal communication.	M 43	Aneurysm external iliac artery, left.	Four inches left linea semi lunaris Trendelenburg's position.	External iliac "comparatively easy."	Silk.	Single catgut suture.	None.	Cured.	Well 3 years later. Previous successful ligation common femoral for left popliteal aneurysm.
21	J. B. Roberts, Jan. 6, 1894	Annals of Surgery, Vol. 23, 1896, p. 272	M 26 C	"Sacculated arterio-venous fistula" of the right thigh from	...	External iliac.	Silk.	Catgut suture	Gangrene of ex	Died.	...

22	Rudolph Matas, June, 1892. . . .	New Orleans Med and Surg. Jour, Oct. 1894.	M	28	C	Traumatic aneurysm (old gunshot wound) common femoral right, filling iliac fossa.	1½ in. median, Trendelenburg's position.	Ext. iliac, midway between bifurcation and Poupart's ligament.	Silk.	None.	Hiccough, "no signs of peritonitis," lived 6 days.	Died.	Postmortem: Abdominal conditions satisfactory, no exudate. Aneurysm contained a gallon of clots.
23	Makins, Sept. 20, 1892	Lancet, Dec. 10, 1892, p. 1328, also ibid, 1893, Vol. ii, p. 196.	M	30		Aneurysm external iliac and common femoral.	Linea semi-lunaris, beginning 1 in. below umbilicus.	Ext. iliac, considerable difficulty from fat and enlarged epigastric and spermatic vessels.	Silk.	Sutured.	None.	Recover'd.	See also Case 26.
24	W. Michell Banks, Sept. 20, 1892 . .	British Med. Jour., Nov. 26, 1892, p. 1163.	M	62		Aneurysm Scarpa's triangle and iliac fossa.	Linea semi-lunaris 3 inches.	External iliac, "nothing could have been more simple."	Carbolized catgut.	Catgut suture.	Temporary cyanosis on 11th day. Otherwise none.	Recover'd.	. . . .
25	T. S. K. Morton, April, 1896. . . .	Here first reported.	M	48	C	Ilio-femoral aneurysm, left.	Median, 4 in. below umbilicus.	Ext. iliac, left midway bifurcation to Poupart's ligament.	Silk, 4 strands, Ballance and Edmunds' "stay knot."	None.	None.	Recover'd	Still well, useful limb.
26	Makins. May 3, 1893	British Med. Jour., Nov. 30, 1895, p. 1350.	M	34		Aneurysm external iliac and common femoral.	Linea semi-lunaris.	External iliac.	. . . . . .	. . . .	None.	Recover'd.	Same man as Case 23, 8 mos. later opposite side.
27	W. H. Brown, Sept. 25, 1892	Lancet, Vol. ii, 1893, p. 31.	F	38		Aneurysm femoral, double. 1st, in right groin extending above Poupart's ligament; 2d, in middle third.	Median, umbilicus to pubes. Trendelenburg.	Ext. iliac, right, much difficulty because of extreme obesity of abdominal wall and omentum.	. . . . . .	. . . .	Stitch hole abscess. Gangrene of leg.	Died in 11 weeks.	Amputation thigh Exhaust'n.
28	John C. Davie, Jan. 9, 1891 . . .	British Med. Jour., April 11, 1896, p. 921.	M	32		Aneurysm left external iliac artery.	Trendelenburg. Median, 2 in above umbilicus to 1 in. above pubes.	External iliac.	Ox aorta.	. . . .	Intestinal obstruction, incomplete. Wound opened on 6th day kink in small intestine.	Recover'd.	Well 4 years later.
29	W. H. Brown. . .	Lancet, Oct. 23, 1897, p. 1047.	M	45		Aneurysm at junction femoral and external iliac, size hen's egg.	. . . .	External iliac.	. . . . . .	. . . .	. . . .	Recover'd.	"Complete recovery."

entire extremity was done up in thick layers of cotton batting after the abdominal incision had been closed by storied sutures. External heat was also applied to the limb for forty-eight hours. It was kept slightly elevated. The leg remained slightly cold and numb for twelve hours, but then warmed up and full sensation returned. Recovery was without rise of temperature or any complication. Good collateral circulation was present in the tibials within two weeks, at which time he was permitted to sit up and gradually get about. The tumor in the groin gradually shrank and was no larger than a hen's egg in six weeks. At the present time (June, 1897) the man continues in the best of health. There is little more than a heavy fibrous cord in the groin, excellent collateral circulation, and absolutely no interference with the motions and utility of the affected side. The abdominal incision shows no sign of weakness.

Case 7.—Dr. Frederick Lange of New York.—Man, aged 60 years; large aneurysm above Poupart's ligament involving external iliac artery on the left side; ligation of left common iliac artery by transperitoneal route; subsequent gangrene of leg; high amputation of thigh; death.

MELANOSARCOMA OF THE CONJUNCTIVA, WITH THE REPORT OF A CASE.

Presented in the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

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Mr. G. of Cambridge Springs, Pa., aged 69 years, was first seen in March, 1888, with a dark purplish lobulated tumor of the left eyeball, about three quarters of an inch in length, one-half inch in breadth and about one-half inch in thickness, springing from the ocular conjunctiva on the nasal side. The tumor was first noticed about one year previously as a small dark spot. There was no history of traumatism.

There was diplopia when looking to the right, owing to the tumor preventing the eye rotating in that direction. There was slight haziness of the lower part of the cornea, probably due to the imperfect closure of the lids, but otherwise vision was good. A fairly satisfactory ophthalmoscopic examination was possible, revealing a healthy fundus. The tumor was slightly movable, but I was uncertain whether or no it was adherent to sclerotic or deep orbital structures. There was no pain and the patient refused to have the tumor removed.

During the next three months the tumor grew rapidly and began to fungate and bleed frequently. During the early part of June there were two or three hemorrhages, which were controlled with great difficulty by compress bandages. It was only after becoming thoroughly alarmed by these hemorrhages that the patient consented to have the tumor removed, which at this time presented an ugly, black mass, filling the palpebral opening and completely covering the eyeball.

Ether was administered and every precaution taken to control excessive hemorrhage, and preparations were made for extensive dissections of the orbit together with the sacrifice of the eyeball. Indeed, a formidable operation was anticipated, but much to our surprise, the tumor was found to be pedunculated, very superficially attached to the conjunctiva, and removed easily with the forceps and scissors with very slight hemorrhage, leaving a perfectly clean wound of the conjunctiva which was partially closed with sutures. The wound healed kindly but was followed by a slight entropium, owing to the cicatrical contraction. This was relieved by an operation one year later. The patient was seen three years after the operation, vision perfect in both eyes, no recurrence of tumor and general health excellent.

The tumor removed was the shape and almost the size of a hen's egg, hard and black, round and smooth, excepting on the larger fungating end. Dr. Chr. Sihler, professor of histology in the medical department of the Western Reserve University, examined the tumor microscopically and pronounced it a small celled melanosarcoma with much pigment.

Mr. Gerrish died September, 1893, five years and three months after the tumor was removed from his eye. An autopsy was held by Dr. W. N. Young, together with the assistance of several physicians of Cambridge Springs, Pa. Death was due to a large cancerous growth of the liver, probably melanosarcoma.

It seems as though there should be no difficulty in distinguishing these conjunctival tumors from intraocular ones which, having penetrated the sclerotic, present externally. Unlike some of our mistakes, this may prove disastrous to our patient. Few would object to the removal of the tumor if assured that the eyeball need not be sacrificed. I fell into this error and only recognized my mistake during the operation. In the light of my present experience the error seems almost inexcusable.

Several cases of non-pigmented sarcoma of the conjunctiva have been reported, but they are probably much less frequent than the pigmented tumors. The sclerocorneal limbus seems to be a not very infrequent location for epithelial cancers. They are usually nonpigmented, sessile, flat tumors of slow growth with an early tendency to ulcerate.

The melanotic sarcoma of the conjunctiva, like the epithelial cancer, is peculiar to old people, although a few have been reported in young persons. Carcinomatous growths of the conjunctiva have been recorded by a number of writers, and may or may not be pigmented. Indeed, the statement of "Noyes' that the occurrence of pigmentation is a feature entirely incidental and not essential to the growth of the tumor seems probable." Although melanotic tumors of the conjunctiva are comparatively rare, I am inclined to think they are more common than the literature of the subject would lead us to infer.

Walton[2] states that in three cases in which he removed the eyeball for a chronic fungus state of the conjunctiva, he found upon dissection the coats and other parts of the eye to be quite unaffected and in their natural state.

Travers[3] gives a beautiful illustration of a case in which he performed abscission of the anterior portion of the eyeball.

Dr. Jacob[4] reports a case of a black, spongy tumor, two inches in diameter, overlapping the eyelids in all directions so as to nearly close the whole opening of the orbit. It appeared to be attached to the eyeball with a cylindric stalk which was slightly enclosed by the eyelids. Being prepared to remove the contents of the orbit, if necessary, Dr. Jacob drew his knife across the stalk as a preliminary operation, and found that he had incised a healthy eyeball, the disease being confined to the conjunctiva. The divided eyeball healed kindly. The subsequent history of the case is not recorded.[5] Cases have been reported in more recent literature in which the eyeball has been unnecessarily sacrificed.

These melanotic tumors of the conjunctiva seem to present an exception to the general surgical principle in malignant growths, that the dissection should be made as distant from the tumor as possible. It is not impossible that these cases may occasionally result in spontaneous cure.

Some time since, Dr. A. P. Ohlmacher[6] presented to the Cleveland Medical Society two specimens taken postmortem from a man who had had trouble with his eye four years before the liver trouble, from which he died, began. The duration of the liver trouble was about one year. The relation of the enlarged liver to the eye disease was suspected by the physician in charge of the patient, but it was thought to be echinococcus disease, and an operation was undertaken to remove the suspected hydatids. The interior of the eye was occupied by a small black tumor which showed, on microscopic examination, all the characteristics of melanotic sarcoma. A curious feature, says Dr. Ohlmacher, of this growth is its tendency to atrophy and shrink with the eyeball instead of increasing in size and breaking through the eye, as is usually the case. A line of pigment along one side of the optic nerve probably marks the route by which the tumor germs escaped from the eye to produce the metastatic infection. The liver with the metastatic, melanotic sarcoma weighs fifteen pounds.

Dr. Mathewson reported a case somewhat similar in the "Transactions of the Amer. Ophthal. Society" in 1874. Dr. Mathewson's case subsequently died, melanotic tumors appearing over the entire surface of the body, as well as in the internal organs.

Dr. Randall[7] observed a case in Jaeger's clinic, a large pedunculated tumor, apparently tending toward spontaneous recovery.

In my case the pedicle was so small, in comparison with the size of the tumor, that it might have been possible for the entire growth to have dropped off from its own weight, and the pressure of the lids upon the pedicle behind it. At least a slight twist so as to cut off the circulation might have accomplished this result, yet these tumors may grow to an immense size.

Mr. Abernathy[8] refers to a curious case of a sarcomatous tumor of the conjunctiva which did not involve the cornea, which was clear and transparent. The tumor pushed out between the eyelids and was seven inches long, three and one-half in circumference, and weighed when extricated two and one-half pounds. More information as to the subsequent history of these cases would be of great interest. This might be a good subject for collective investigation.

There seems to be great indefiniteness as to how frequently and how soon recurrence of melanosarcoma of the conjunctiva may occur, and in what proportion metastasis may be expected after removal. De Wecker[9] intimates that we should be extremely cautious about operating on these tumors. He says cases have remained absolutely stationary for twelve or even twenty years, while if operated on they sometimes recur with fearful rapidity, or what is perhaps worse, undergo metastasis. If convinced that general infection is not immediately imminent, he advises enucleation of the eye at once; but no such operation should be ventured on if previous attempts have already produced a return of the disease *in situ*, or if the blood is contaminated. In that case metastasis will happen almost to a certainty.

As an illustration of the difference of opinion held by members of the profession as to the question of metastasis, Strause[10] offers as one of his conclusions:

"Metastasis practically never occurs." The latter conclusion does not seem to be warranted by the history of these cases as recorded by many observers.

Fuchs[11] reports a case of typical melanosarcoma that was first excised in 1879. In May, 1886, it returned on the opposite side of the cornea of the same eye. It was again removed and returned. In September of the same year the eye was enucleated, and six months later it returned in the bottom of the orbit. Complete exenteration of the orbit was then performed. The patient died from extension of growth to internal organs in February, 1890.

Cases dying from metastasis have also been reported by Ole Bull[12] and others.

REFERENCES.

1 Noyes: Archives of Ophthal., vol. viii, p. 145.
2 Walton: Practical Treatise on Dis. of Eye, 3d Ed., 1875, pp. 140 to 149.
3 Travers: Synopsis of Dis. of the Eye, 3d Ed., 1824, Fig. 2, Plate 2, p. 102.
4 Dublin Medical Press, Nov. 30, 1842.
5 Archives of Ophthal., vol. xviii, p. 163.
6 Ohlmacher: Cleveland Jour. of Med., March, 1897, p. 141.
7 Trans. Amer. Ophthal. Society, 1886.
8 London Reports, 1811, Surg. Observ. on Tumors, etc., p. 48.
9 Ocular Therapeutics, p. 101.
10 Archives of Ophthal., April, 1897.
11 Fuchs: Text-book on Ophthal., 1895, p. 119.
12 Archives of Ophthal., vol. xviii, p. 168.

THE SURGICAL TREATMENT OF TRACHOMA.

Presented in the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

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The scope of the present paper will not admit of a review of all of the operative procedures that have been and are now employed in the treatment of trachoma, even if it were desirable. I shall, therefore, mention but few and, as I believe that a discussion of methods employed by the individual speakers here is more suitable and will be more profitable to those present, I shall conclude by describing the method that I find most generally useful.

Viger (*Annal. d'Oculistique*, 1892, p. 175) scarifies horizontally and transversely and brushes in a solution of sublimate, 1 to 500. He then applies compresses dipped in a hot solution of sublimate, 1 to 5,000. The after-treatment is by daily applications of sublimate solution, 1 to 500.

Armaignac (*Annal. d'Oculistique*, Vol. cx, p. 121) employs a method which he terms "Tattouage médicamenteux." With a bunch of tattooing-needles the whole affected portion of the conjunctiva is repeatedly pierced; at the same time the surface of the conjunctiva is bathed in a solution of sublimate, 1 to 500. Afterward the brush is employed with the same solution. He states that after some weeks the granulation tissue entirely disappears leaving a smooth surface.

Ottawa (*Annal. d'Oculistique*, Vol. cx, p. 45) employs massage.

Blubaugh (JOUR. A. M. ASSN., Oct. 14, 1893) uses a series of scrapers for scraping away the granulations and then gives the patient a "lump of alum," directing him to rub the conjunctival surface as the case demands. The patient is permitted to go home.

Excision of the retrotarsal fold is still advocated by some surgeons (Venneman, *Arch. d'Oph.*, Paris, 1894, p. 413).

Experience in the surgical treatment of trachoma, extending over a number of years, causes the writer to proceed as follows: All operations for marked trachoma are performed under ether or chloroform anesthesia. Cocain anesthesia is not sufficient and, if attempted, results in causing the patient pain and unduly hastens the work of the surgeon. After cleaning the eyes, the margins of the lids are seized in turn by means of the clamp forceps and the lid is rolled over the blades of the forceps. This serves to expose, almost if not quite, the whole surface of the conjunctiva.

With a scarificator bearing three Demarre's blades and supplied with a guard to limit the depth of the incisions, superficial incisions parallel to the margins of the lids are made into the trachomatous tissue. The conjunctival fold is then seized with the Noyes or Knapp trachoma forceps, preferably the former, and held between the blades of the forceps. If on raising the fold of conjunctiva it is found that some of the trachomatous tissue has escaped scarification, the remaining portion is scarified. The incisions should run parallel to each other; they serve to uncap the trachoma follicles and to permit of the easy escape of the masses of lymphoid cells which form the bulk of the trachomatous tissue. By a gentle stripping motion, avoiding undue pressure and tearing of the conjunctiva, the contents of all of the follicles in fornix, tarsal and caruncle conjunctiva are evacuated. A moderately soft tooth brush is then employed to introduce a solution of sublimate 1 to 500 into the conjunctival tissue and incidently to cleanse the membrane, but litttle force being employed. The conjunctival sacs are then irrigated with a solution of sublimate, 1 to 5,000, to clear them of all particles of blood clot, and finally an ointment of sublimate 1 to 5,000, in vaselin is applied to the conjunctival surface by means of a glass rod. A piece of moistened gauze is then laid on the lids and the eyes bandaged for twenty-four hours. The bandage serves to control any edema that might arise if slight pressure were not applied. The patient does not experience pain after the operation and surprisingly little reaction follows. The bandage is removed after twenty-four hours and the after-treatment is commenced. On inspection, when the bandage is removed, a layer of plastic lymph (pseudomembrane) will be observed covering the affected conjunctiva, and a tendency to adhesion between apposed folds of the conjunctiva will be noticed. A few drops of cocain should be instilled into the conjunctival sacs and after a few minutes the sacs should be cleansed by irrigation with a solution of sublimate, 1 to 5,000. After drying, the adhesions between the folds of conjunctiva should be gently broken up by means of a small glass rod, with a smooth round or slightly pointed end, or a metal probe of fair size carrying and being lubricated by a liberal quantity of the sublimate ointment above referred to. The layer of plastic lymph should not be disturbed except where it is concerned in forming adhesions between folds of the conjunctiva. The pseudomembrane forms a smooth surface, under which the repair of the conjunctiva progresses most favorably, and is cast off in a few days disclosing a very satisfactory condition of the conjunctiva.

If any feeling of discomfort is experienced by the patient, cold applications may be made to the lids after the procedure just referred to, which may be continued for one or two hours. There is no necessity for reapplying the bandage. Patients usually open the eyes and suffer little or none. The introduction of the ointment renders the tendency to the adhesion of the conjunctival folds less; however, the adhesions that do form *must be broken up*, in the manner described, every twenty-four hours until the epithelial layer is completely restored, when the formation of the adhesions will cease. This usually takes about six days. No other treatment is necessary during this time, except that the patient may be directed to bathe the eyes with a solution of boric acid two or three times a day to ensure cleanliness. He may be permitted to be about as usual after the first forty-eight hours. The patient is now given a solution of sublimate, 1 to 8,000, to drop into the eyes three times a day and the surgeon may apply the ointment as above or an astringent, as appears necessary, every second day. Treatment other than a wash to ensure cleanliness may be discontinued in two weeks from the date of the operation. Recovery with a smooth elastic conjunctiva usually occurs in three weeks. This method is thorough, entails but little suffering and ensures good results in all cases in the stage of hypertrophy, and in the second stage in cases where the contraction has not advanced too far. If there is marked shortening of the palpebral fissure, the writer does canthoplasty, limiting the extent to the requirements of the case.

In exceptional cases where few trachoma follicles are present but are persistent (as sometimes occurs in private practice), the above described procedure, to a much less degree, is carried out, cocain anesthesia being relied upon.

The advantages that this method possesses are: 1. The easy removal of the trachomatous tissue, facilitated by the shallow scarification. 2. The thorough antisepsis without deterring the healing process 3. Recovery with a smooth surface and minimum contraction.

One point the writer wishes to emphasize is that the after-treatment must be carefully carried out after this as after other operative procedures for trachoma, otherwise unpleasant adhesions between folds of conjunctiva, with a decided lessening of the area of the conjunctiva will follow.

A COMPARISON OF THE VALUE OF LOCAL MEDICINAL MEASURES IN THE TREATMENT OF GRANULAR CONJUNCTIVITIS (TRACHOMA).

BEING A PORTION OF THE REPORT OF THE SPECIAL COMMITTEE APPOINTED TO DISCUSS THE SUBJECT OF GRANULAR CONJUNCTIVITIS (TRACHOMA) FOR THE SECTION ON OPHTHALMOLOGY OF THE AMERICAN MEDICAL ASSOCIATION.

Presented to the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

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Study of the extensive literature upon the subject of granular conjunctivitis shows that the vane of fashion in its treatment has veered somewhat from the radical surgery in vogue several years ago to which it had pointed after years of silver and blue-stone cauterizations. Appropriate general treatment and regimen together with local medicinal applications in connection with surgical procedures are again in favor.

To scientifically discuss the value of local medicinal measures it is first necessary to consider the nature of the diseased process. Examination of the vast mass of literature upon the treatment of granular and trachomatous disease shows that the authors' main ideas are to empirically cut, squeeze, burn and cauterize away the follicles and trachoma bodies in order to remove the supposed mechanical effect caused by their presence. I will attempt to properly expose the principles of scientific local medicinal treatment as well as to show the comparative value and action of many of the remedies that are now used in the cure of this disease.

Those chronic inflammations of the conjunctiva which by secondary infection or by metamorphosis ultimate in the trachomatous state pass through the following distinct stages, in whole or in part:[16, 30]

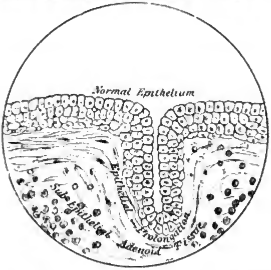

Figure 1.

1. The stage of epithelial proliferation, which is a catarrhal condition in which the functions of the cells in reference to their multiplication and the production of mucus is increased (Fig. 2). Here detergents, antiseptics and other treatment directed toward relief of inflammation is indicated.

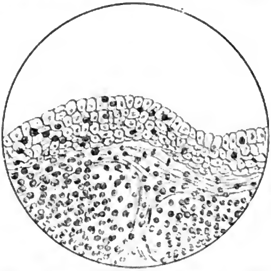

Figure 2.—Epithelial proliferation.

2. The stage of superficial destruction in which the superficial epithelial elements are partially destroyed, but which by the healing process may be entirely reproduced (Fig. 3). In this condition surgical removal of contents of follicles and hyperplastic tissue, together with stimulating measures directed toward resorption of the trachomatous masses and regeneration of the epithelium, as well as detergents and antiseptics are needed.

3. The stage of total destruction of the epithelium which embraces those grave inflammations which, though well held apart by macroscopic signs, have for a common characteristic the destruction of all the epithelial elements on the surface of the conjunctiva (Fig. 4). In this stage, relief of complications and sequelæ, stimulation of the local nutrition to aid in resorption of cicatricial tissue and regeneration of the epithelium through stimulation of that remaining in the conjunctival crypts are the most important indications.

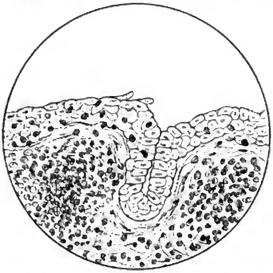

Figure 3.

4. The result of chronic granular disease is xerosis, and is attended by total destruction of all the mucous elements, the conjunctiva being replaced by connective tissue. This is incurable, but symptoms may be partially subdued by emollients.

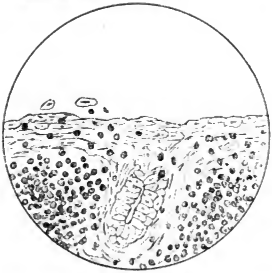

Figure 4.—Total destruction.

The alteration of the epithelium and infiltration of the tissues are the only constant anatomico-pathologic phenomena and our treatment should be directed toward the removal of the causes of its destruction and to effect its regeneration.[19 20 30] In this article I will pay no further attention toward prophylaxis, general treatment and surgical procedures in this disease, except to state that local applications are in most instances only a portion of the treatment and all grave cases must be treated surgically as well.

The local treatment of granular conjunctivitis may be described under the following headings: 1. Detergents. 2. Antiseptics. 3. Subjection of acute inflammations. 4. Stimulation of nutrition. 5. Mechanical or surgical removal of the products of the inflammation, contents of follicles, hyperplastic tissue, etc. 6. Relief of asthenopic symptoms. 7. Relief of complications. 8. Relief of sequelæ.

1 and 2. Be it believed that one or several forms of germs or spores together with other causes form this disease, it is considered necessary to use antiseptics which may hinder their growth with as little destruction of the tissues as may be consistent with resultant recovery of the function.[30] For the patient's use, weak solutions of boric acid (2 to 5 per cent.), bichlorid[20 27 29] and cyanid[18] of mercury (1 to 5,000 to 1 to 10,000) as detergent washes are recommended. Instillation of stronger solutions fortified or guarded by antipyrin (0.5 to 3 per cent.), weak eucain (0.5 to 1 per cent.), cocain (0.25 to 1 per cent.), or holocain (0.16 to 0.25), are gratefully borne by the patient. The washes and collyria act superficially and are little more than detergents, but are particularly useful in the first and second stages of the disease. Yellow oxid of mercury ointment (0.33 to 2 per cent.), and ointment of ichthyol[8 21] (1 to 5 per cent.), are antiseptics as well as stimulant compounds. Far more effect is produced by local application of antiseptics directly to the diseased membrane by skilled hands, and many cases are no doubt cured by such means alone. Brushing by the nitrate or iodid of silver (0.5 to 5 per cent.), aqueous or glycerin[29] solutions of bichlorid of mercury (1 to 10,000 to 1 to 100) or lactic acid[25] (2 to 20 per cent.) cause considerable reaction and the first stains the conjunctiva if used for any length of time. Argentamin[14 22] (5 to 20 per cent.), cyanid of mercury (1 to 10,000 to 1 to 100) and boro-glycerid[3 6] (5 to 25 per cent.), are not open to this objection. The tannate of quinin[3] in solution (5 to 20 per cent.), antipyrin[16] (3 to 25 per cent.), or resorcin[11] (1 to 10 or 1 to 5 in boric acid solution or powder) dusted on the surface of the conjunctiva, are antiseptics. (Powders are later considered in this article.) The submucous injection of sublimate[26] has been recommended in trachomatous pannus.

3. Iced applications or cold bathing together with the silver compounds are useful in the first grade of the affection when there is acute inflammation and when the secretion is free. Irritation may be limited by the use of cocain, eucain or holocain in collyria, to which boric acid or biborate of sodium may be added.

4. Hot water bathing or hot applications are among the best stimulants to nutrition in the second and last stage of trachoma. Bathing is usually ordered as hot as may be comfortably borne, for five minutes at a time from twice to a dozen times a day. Hot compressing is best made for periods of one-half to one hour a number of times a day, the compresses being changed every minute or two. To these applications antiseptics may be added. I have had gratifying results from a jet of steam applied for three to five minutes once a day to the everted eyelids.

After the acute state has passed most cases require stimulating applications of silver, mercury, copper and zinc compounds. It is well not to destroy the epithelium by corrosive antiseptics or caustics in the hope of thereby invoking secondary reaction for the purpose of stimulating nutrition or with the idea of destroying the germs in the subconjunctival adenoid tissue.

Nutrition may be actively increased by local massage with yellow oxid of mercury ointment (0.5 to 2 per cent.) placed in the conjunctival cul-de-sac and massage practiced through the lids for three to five minutes at a time, or what is better, the retrotarsal folds may be strongly reverted and the ointment rubbed into the mucous membrane by some smooth instrument for several minutes. In cases inapplicable for treatment by scarification, expression, picking out or cauterization of individual granulations, stimulation may be effected by massage with impalpable boric powder, iodoform, calomel or aristol rubbed in by the finger-tip, or by hard rolled pledgets of cotton dipped in olive oil, or by massage with the finger alone, or by an instrument with or without medicaments. Rubbing down of the granulations by pumice stone, instillation of crude petroleum,[7] ichthyol,[8 21] boracic acid and resorcin,[11] glycerite of tannin,[6] etc., act largely by stimulation. The application of alum, sulphate of copper, nitrate of silver, lapis divinus and muriate of ammonium in pencil form act in the same manner.

Jequirity in weak solutions[12] (0.5 to 2 per cent.) three to seven times a week is said to be a powerful irritating stimulant; where used in strong infusions for the purpose of causing an artificial conjunctivitis it is the over-stimulation of the healing process which causes absorption of the granulations and redundant tissue.

5. Mechanical and surgical procedures for removal of the granular contents of the follicles, etc., are most applicable in the second stage and must generally be supplemented by medicinal methods of treatment.

6. Aside from asthenopic symptoms caused by refractive and muscular errors, weak sight is likewise due to conjunctival irritation. This is to be remedied by protective glasses, by hot or cold bathing, collyria of boric acid (2 to 5 per cent.), borate of sodium (2 to 5 per cent.), sulpho-carbolate and sulfate of zinc (1 to 5 per cent.), etc., usually with the addition of antipyrin (0.5 to 3 per cent.), eucain (0.5 to 1 per cent.), cocain (0.25 to 1 per cent.), holocain (0.16 to 0.5 per cent.).

7. For the relief of symptoms as well as complications, as when the process extends to the cornea forming pannus, or when vascular or ulcerative keratitis occurs, the myotics or mydriatics are indicated. Eserin (0.1 to 2 per cent.) is a stimulant of nutrition, the mydriatics are more sedative. Atropin (0.2 to 5 per cent.) is frequently indicated, especially in intraocular complications, but is not well borne for any length of time, as it ultimately may produce conjunctival irritation. Scopolamin and duboisin in the same strength may be substituted.

8. The relief of sequelæ.—Massage is the most beneficial method of dealing with leucomata, many of which may be dissipated by conscientious daily application. Active massage is of great benefit in loosening the scars and procuring resorption of cicatricial tissue changes in the tarsal conjunctiva. The mercuric ointments or calomel, boric acid, iodoform, aristol, etc., in powder or ointment form are decided adjuvants for this procedure. Collyria, milk,[15] olive oil or ointments composed mainly of lanolin relieve the symptoms caused by conjunctival xerosis.

Taking the various local medicinal applications most in vogue in the order of their usefulness, we find the silver compounds lead the list: 1 to 5 per cent. nitrate (or iodid[13])* of silver solutions brushed on eyelids from three to seven times a week. Its disadvantage is that it not only stains the conjunctiva if persisted in for any length of time, but is also irritating, and when used in strong solutions or in solid stick destroys the epithelium faster than the microbes, or stimulates the repair. Cases treated by nitrate of silver alone are apt to eventuate with a considerable amount of scar tissue. It is likely that the alkalin non-irritating silver compounds, argentamin[14 22] (3 to 5 per cent.), argonin (2 to 10 per cent.) solutions may ultimately take the place of the nitrate, as they are not open to these objections, although both antiseptic and stimulating. Brushing by corrosive sublimate[24 28 29] (1 to 1,000 to 1 to 100) has its advocates, but it is irritating and its injudicious use is open to the same objections as those of silver nitrate and it likewise corrodes the corneal epithelium. Its application should be limited to connection with surgical treatment,[2 3 27 28 29] as scarification, expression and galvanocauterization of the follicles. Tattooing[1] with these solutions has likewise been practiced. Cyanid of mercury is better borne and not so irritating. The application of zinc solutions, such as the sulphate and sulphocarbolate are antiseptic and stimulating, but are unpleasant for the patient on account of the irritation. The solid stick of alum is a stimulant and is generally well borne. Sulphate of copper crystal, lapis divinus and muriate of ammonium should be used only for stimulant purposes (several times a week) and not with the idea of cauterizing away the granulations. I wish to here warn against the routine and discriminate use of these caustics as empirically recommended in many treatises and articles. Strong solutions of antipyrin and of quinin are advised, largely on account of their antiseptic properties. The dusting in of powders, boric acid, calomel, tannate of quinin, tannin, iodoform, antipyrin in full strength or resorcin (1 to 10 to 1 to 5 in boric powder[11]), etc., are advocated for their antiseptic and stimulating properties, but are seldom used except when combined with massage.

The ointments of mercury (yellow oxid 0.5 to 5 per cent.), white precipitate (1 to 5 per cent.), red oxid (0.25 to 1 per cent.), calomel (1 to 10 per cent.), cupric sulphate (1 to 10 per cent.) and ichthyol (5 to 20 per cent.) are antiseptic and stimulating, especially when used in connection with massage in indolent follicular and trachomatous disease, and particularly where cicatricial tissue has formed. The value of most applications depends upon their antiseptic and stimulating qualities. Of all forms of local treatment I would consider that massage with or without medicaments is of the greatest value as it produces increase of nutrition and thus aids in resorption of the follicular contents of the trachoma bodies and of the neoplastic tissue.[30]

Most of these applications are better borne by the patient if weak solutions of local anesthetics be instilled before each treatment. Their effect is decidedly increased if the conjunctival cul-de-sac be washed out with warm salt or boric solution. If the inflammation be attended by suppurative secretion it is well to first brush the lids with peroxid of hydrogen solution before applying silver or other medicament. It is likewise necessary to limit the action of the silver compounds by neutralization with second brushing with salt solution. The silver salts form the albuminate of silver, which lines the conjunctiva and acts for some time after its application. The sulphate of copper crystal is to be followed by brushing with clear water to remove the excess.

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* First pass a solution (4 to 12 per cent.) of $AgNO_3$ over lid, then wash with mild solution of potash. ℞. Potass. iod., 8.00; glycerin., 8.00; aquæ, 16.00, whereby a precipitate of iodid of silver is formed.

I wish to here insist upon the thorough eversion of the eyelids where local applications are made to the diseased conjunctiva. The principal part of the process will be found in the fold of transmission, which can only be exposed to view and the proper application of medicines by thoroughly pushing the everted upper lid down by cotton-tipped probe or instrument.

Attention must be given to the symptoms of the patient, which should be relieved by dark glasses, hot or cold bathing and detergent washes and collyria. Medicinal applications should not be used heroically,[4] but restricted to the indications here laid down. Many cases of follicular and trachomatous disease (granular conjunctivitis) are cured by local applications, but when adhered to alone the treatment is tedious and is perhaps more apt to be attended by complications due to neglect or over-zeal than when combined with properly applied surgical procedures by which a more speedy and satisfactory cure is effected.

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REFERENCES.

Recent literature pertaining to the local medicinal treatment of granular conjunctivitis or trachoma.

[1] Armaignac: Treatment of Trachoma and Lupus of Lids by Medicamentous Tattooing, Annal. d'Ocul., ex, 121.
[2] Bullard: Trachoma, a Report, Annals of Ophth. and Otol., v, 1896.
[3] Burchardt: Ueber die Ursache und die Behandlung der Körnerkrankheit des menschlichen Auges, Centralb. f. Augenhkde., February, 1897.
[4] Crainiceau: Shall Granulations be Treated Lightly or Heroically? Klin. Monatsbl. f. prakt. Augenhkde., March, 1896.
[5] De Schweinitz: Text-book on Diseases of the Eye, 1896.
[6] De Schweinitz: The Indications for Some of the Applications Commonly used in the Treatment of Granular Lids, Med. News, Feb. 7, 1891.
[7] Dubat: Raw Petroleum ,for Conjunctivitis, Münch. Med. Woch., Dec. 29, 1896.
[8] Eberson: Ichthyol zur Behandlung der Trachom., Aertzl. Centr. Anz. Wien, viii, 1896.
[9] Evans: The Treatment of Granular Lids, Amer. Pract. and News, xxii, 1896.
[10] Fick: Text-book on Diseases of the Eye, 1897
[11] Gray: New Remedy in Trachoma, Journ. Arkansas Medical Society November, 1894.
[12] Hodges: Unusual Effect of Jequirity in Chronic Trachoma, Ophthal. Record, 1892.
[13] Hodges: Iodid of Silver in the Treatment of Trachoma, Ophthal. Record, September, 1891.
[14] Hoor: Argentamin, Klin. Mon. f. prakt. Augenhkde., 1896.
[15] Kalt: De l'emploi des grands lavages dans le treatment de l'ophth. gran., Arch. de l'Ophth., xvi, 1896.
[16] Kazaurow: The Question of the Treatment of Trachoma, Vratsch, 1891, No. 5.
[17] Keyser: Conjunctivitis Granulosa: Pumice Stone, Ophthal. Record, August, 1891.
[18] Landesmann: Therapie an den Wiener Kliniken, 1896.
[19] Mutermilch: The Pathologic Anatomy of Chronic Affections of the Conjunctiva, Annal d'Ocul., 1892.
[20] Mutermilch: Trachoma, Annal. d'Ocul., January, 1893.
[21] Panas: Ichthyol in Ophthalmology, Münch. Med. Woch., Feb. 23, 1897.
[22] Schaeffer: Argentamin, Wien. Klin. Woch., xii, 1894.
[23] Schneller: Treatment of Follicular Conjunctivitis, Archiv f. Ophthal., xxxviii.
[24] Schreiber: Sublimate Treatment of Trachoma, Wien. Med. Woch., p. 38, 1893.
[25] Segal: On Treatment of Trachoma with Concentrated Sol. of Lactic Acid, Vestnik ofthalmol Kiev., xiii, 1896.
[26] Siklossy: The Subconjunctival Injection of Sublimate in Trachomatous Pannus, Pest. Med. Chir. Presse, xxx, 1894.
[27] Thompson: On the Use of Bichlorid of Mercury in Chronic Suppurative Conjunctivitis, Kansas Med. Jour., viii, 1896.
[28] Weekes: Austral. Med. Gazette, January, 1896.
[29] Westhoff: Treatment of Trachoma, Deutsch. Ophth. Med. Society; 1892.
[30] Würdemann: Pathology of Granular Conjunctivitis, Ophthal. Record, October, 1894.

THE PRESENT STATUS OF JEQUIRITY IN THE TREATMENT OF TRACHOMA.

Presented to the Section on Ophthalmology at the Forty-eighth
Annual Meeting of the American Medical Association, at
Philadelphia, Pa., June 1-4, 1897.

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It is my purpose in this short paper to give my personal experience only, in the use of jequirity in the treatment of the above affection; when used in picked cases, I know of nothing that will take its place. I have used it in all cases except the acute, with nothing but the best results. I have never seen an ulcer of the cornea follow its use. I have seen some few cases of xerosis after using jequirity, but none I could say positively depended upon, or was the direct after affect of, this medication.

Several years ago one of my assistants, while squeezing a case of trachoma, was unfortunate enough to become inoculated. This case was a peculiar one from the beginning. His eyes stood no treatment well; his corneæ were extremely irritable; all the mydriatics produced increased corneal irritation; his eyes were made worse by all treatment. I compressed the trachomatous bodies twice. I had Drs. Ray and Dabney of this city to see him, but nothing suggested was of any service. I kept him in the Infirmary for months and tried every treatment I had ever heard of, with no good result. I suggested the use of the jequirity several times, but he feared it. At last I determined to use it without his knowledge. His corneæ had several abrasions, and was, as I stated before, extremely irritable. I took a small portion of the powdered jequirity, made a very weak infusion, and applied it carefully to the lids with a cotton mop, two days in succession. Little or no reaction followed, and his eyes improved very rapidly. I repeated the application three or four times. The doctor is now a busy practitioner, and suffers little or none with his eyes. He had mixed astigmatism, for which he wears correcting glasses.

I have under my charge now a case of trachoma in the person of a young woman from Illinois. She had pannus of left cornea. Just above and overlapping right cornea she had a mass of trachomatous bodies. I dusted the powder in the left eye once. The pannus of this eye was relieved promptly. Under two applications to the right eye, the mass of trachomatous bodies disappeared.

I know of no other treatment so safe that will give such results. Before expression came into use, I used powdered jequirity occasionally in cases without pannus, with none but favorable results. I have had cases with extreme pannus led into the office, unable to find their way, who under the use of the jequirity were able in six or eight days to come alone. Mary L: V. R.=P. L; V. L.=20/200. Jequirity used in both eyes. Repeated once. Ultimate result: V. R. = 20/70; V. L.=20/50.

Such cases are common in my experience. I see so many less cases now in which jequirity is indicated than I used to, because trachoma, I think is recognized earlier and treated more intelligently. Very weak infusions of jequirity are often of much benefit. But I most frequently use the powder; severe reaction is much less frequent, the application can be better confined and the powder does not degenerate with time.

The powdered jequirity I now use has been made for some years and is as active today as when fresh. I have used jequirity in all stages of trachoma except the acute with and without pannus, with none but favorable results. I am more careful now in the selection of my cases than formerly, yet I would not hesitate to use it in any case in which other methods had failed me. In select cases of trachoma with pannus, I know of nothing that will take its place.

Gentlemen who have had one or two unfortunate results from its use should try it again. I am sure they will be pleased with it if properly used, in the form of a powder, in selected cases. In some cases it is with me the last resort, in others it is the first.

THE TREATMENT OF THE MALPOSITION OF THE LID BORDER IN TRACHOMA.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June, 1-4, 1897.

BY F. C. HOTZ, M.D.
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It is needless to say that the faulty position of the lid border induced by trachoma and known as *entropium*, can be treated only by operations. And it is also unnecessary to state that there is scarcely any other malformation of the human body for which a greater number of operations has been invented. Yet it is hardly reasonable to suppose that a condition so typical as the trachoma entropium could be treated with equal success by methods based upon widely different principles.

It is certainly very desirable that some order be brought into this chaos, and I believe this task is not so difficult as it may appear, if we clearly formulate our demands of what, in our judgment, a rational operation for entropium should and should not do.

The first condition we must insist upon, is that we should always take into serious consideration the cosmetic effect of our operation. The eyelids play a very important role in facial expressions, and we have no right to mar the face by unnecessarily mutilating the eyelids in the name of surgery. Every entropium operation which permanently disfigures the eyelid should be forever stricken from the list of legitimate ophthalmic operations; for the malposition of the lid border can well be rectified without the least mutilation.

The second condition we must insist upon is that the most rational method of relieving the entropium *is to remove those structural changes which cause the inversion.*

It is a prevalent idea that the entropium is caused by the shrinkage of the tarsal cartilage and the cicatricial contraction of the palpebral conjunctiva; and many operations are based upon this view. But that these structural changes are not the real etiologic factors in the production of entropium is evidenced by the fact that in many eyelids we find extensive cicatricial shrinkage without entropium, while in other lids we find its margin completely inverted though its tarsus is not only not contracted but abnormally large. Furthermore, it is well known that the destruction of the palpebral conjunctiva by burns does not lead to entropium, and that we may excise large portions of the palpebral conjunctiva and the cartilage without fear of producing entropium.

To trace the etiology of entropium we must study the affection in its incipient stage. And if we do so, we notice the very significant fact that the structural changes begin at the *anterior* edge of the lid margin. Long before the posterior edge shows the slightest disturbance, and even before the position of the lid margin itself is perceptibly altered, do the eyelashes show a decided drooping and the skin along their roots forms a fold falling down over and hiding the anterior edge of the lid border. In other words the skin and the cilia have slipped down on the outside of the tarsus.

This dislocation of the skin, which is shared by the lower bundles of the orbicularis muscle, is undoubtedly brought about by continued and oft-repeated spasms of the orbicularis muscle; for it is exactly the condition of the lid margin during acute blepharospasms, made permanent.

These anatomic changes at the anterior edge persist through all stages of entropium from beginning to end and are, I believe, the chief cause of the subsequent inclination of the lid border itself; for the displaced bundles of the orbicularis muscle resting upon the anterior edge of the lid margin exert a strong pressure upon the same by their contraction in the act of winking; the lid margin will gradually yield to this pressure, become stretched and inclined when its tissues are rendered less firm and resistent by the inflammation which usually invades the tarsus in the course of trachomatous conjunctivitis.

The foregoing exposition of the primary structural changes leading to the malposition of the lid border in trachoma plainly indicates what the principal aim of our treatment should be. The dislocated skin and muscle must be drawn up upon the external surface of the tarsus and fastened to it to prevent their slipping down again; the skin thus drawn up is to be stretched sufficiently so as to turn up by its traction the drooping cilia and the inclined lid margin.

These problems are solved by the following operation: The lid skin being well put on a stretch, a transverse incision extending from canthus to canthus is made through skin and muscle a little below the upper border of the tarsus. The lid portion of the skin and muscle thus divided from the supratarsal portion is dissected up from the tarsus down to the roots of the eyelashes, and the muscular fibers covering the upper border of the tarsus are excised. The lid skin is then drawn up over the tarsus and fixed to its upper border by three silk or catgut sutures, which enclose within their loops only the skin borders of the incision and the upper tarsal border and, therefore, when tied, close the original wound and establish a firm union of the skin with the tarsus. In the five minutes allowed for this paper it is impossible to give a detailed description of the technique of this operation; nor is it necessary since I have fully described it on several former occasions.[1]

Professor Schnabel[2] of Prague, has modified the operation by making the incision only 1 or 2 millimeters above the eyelashes, and after dissecting up the skin and orbicularis muscle to near the upper border of the tarsus, he slides the narrow strip of skin upward until the cilia and lid margin are turned up, and fixes it to the tarsus by a running suture. He wrote me that the reposition of the cilia and lid margin is always permanently achieved by this procedure, and that even in the worst forms of entropium he has no need of grooving or splitting the cartilage.

My observations on this point have led to a different result. After I had introduced the operation at the Illinois Eye and Ear Infirmary, I noticed some of my colleagues invariably made the incision as low as Professor Schnabel; but the results were so much less satisfactory than my own, that in my second paper[3] I took occasion to warn against placing the incision too near the free edge. But in many cases the cartilage is so small that the incision has necessarily to be made very close to the cilia. And I frankly admit that under these circumstances I am not able to accomplish the complete and permanent reposition of the cilia by the above operation alone; I find it necessary to add to it the intermarginal incision and to fill the marginal wound with a graft of skin or mucous membrane. The graft should be of the same length and width as the wound. Retaining sutures are not necessary, but both eyes should be bandaged until the graft is well adherent in its new bed (twenty-four to forty-eight hours). I use skin grafts in preference to mucous membrane, because the normal lid margin is covered with skin, not with mucous membrane; because skin grafts are less liable to drying up and mortifying and because they give a more substantial support to the cilia. I cut the required strip from the integument behind the ear, the incisions penetrating obliquely just to the corium The graft is transported directly to the lid and adjusted to the wound.

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[1] Prager Med. Woch., 1893.

[2] Archives of Ophthalmology, Vols. viii and xi; Annals of Ophthalmol., Vol. v.

[3] Arch. of Ophthalmol., Vol. xi.

Hairs do not grow in such skin grafts. If afterward any hairs appear in the new lid margin, it is easy to prove they are cilia left behind in the posterior portion of the lid margin by a faulty execution of the intermarginal incision.

The management of entropium briefly outlined in this paper is the result of careful and critical observations and trials carried on during the past twenty years; and I feel warranted by a large clinical experience, in stating that the operative procedures here recommended satisfy every requirement of a rational operation. They do not cause any disfiguration of the lids; they rectify the primary structural changes causing the entropium; and they relieve the malposition perfectly and permanently.

HINTS ON THE HYGIENE OF TRACHOMA AND THE INFLUENCE OF ALTITUDE AND CLIMATE.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association at Philadelphia, Pa., June 1-4, 1897.

BY SWAN M. BURNETT, M.D., PH.D.
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To establish efficient rules for the hygienic management of a disease it is first necessary to have definite ideas in regard to its causation, the condition of the subject and the environment most conducive to its development.

In respect to trachoma our knowledge is sadly deficient as to the majority of these factors. We have not yet arrived at the unanimous acceptance of a microbic origin of the disease. While the probabilities, in view of recent bacteriologic studies, point to the existence of a specific micro-organism as concerned in some way in the production of trachoma, the most diligent researches have failed to find one which any considerable number of investigators have agreed upon as the definite trachomatous microbe. By others it is held that the disease is essentially one of the adenoid tissue of the conjunctiva, which an inflammation of that membrane brought about by any means whatever is capable of calling up in a person predisposed to it, and who is in a condition favorable for its outbreak. In other words, a positive and well established operating course for trachoma has not yet been agreed upon. Even its contagiousness *per se*, which was formerly accepted as one of the characteristics of the disease, is now questioned by many. It is acknowledged that the discharge from a trachomatous eye may contain micro-organisms which, when transported to another as yet unaffected conjunctiva, will set up an inflammation there, but this inflammation is not necessarily trachomatous. Any inflammation, however, is capable of setting in motion a train of processes which will end in an outbreak of trachoma if a tendency to the disease be present, just as an attack of pneumonia will hasten the appearance of tuberculosis in one predisposed to it. This matter of predisposition as applied to trachoma is one which has received considerable attention only recently. In former times it was considered a purely contagious affection to which all individuals were liable in the same degree, and this idea is still held by some.

The facts that have been elicited from a systematic investigation of the prevalence of trachoma among different people show, however, such a disparity of susceptibility among them that we are forced to consider race as an important factor in the establishment of a predisposition to the disease. Some races, as the negro in the United States, are practically immune even under the most unfavorable hygienic surroundings, while others, as the Irish, Polish Jews, Italians, etc., are especially liable and suffer greatly when there are favorable conditions for the development of the disease. With the acceptance of the theory of a dyscrasia or predisposition as probably the essential character of the affection, our ideas in respect to its hygienic management must differ somewhat from those based on the theory of its purely contagious nature. As, however, the idea of a dyscrasia has been considered seriously only within a very recent period, our knowledge of the nature of this predisposition is as yet very limited. This is a field which at present offers the most promising results for study and investigation. It must be borne in mind that here, as in all diseases of a demonstrated or supposed microbic origin, even with the acceptance of a dyscrasia or predisposition, we have to consider not only the micro-organism but also the soil in which it grows and develops. We must have soil as well as seed. A large number of pathologic micro-organisms we have always with us everywhere, and in the conjunctival sac of perfectly healthy eyes there are often to be found organisms which, if they were sufficiently numerous and the condition for their growth favorable, would in a short time set up a morbid process; all they need is a proper condition of the soil. Hitherto we have been directing our attention exclusively to the microbe, its form, habits, modes of development, etc., to the almost utter neglect of the soil on what it grows and pabulum on which it feeds. It is evident, therefore, that any system of hygienic management which aims at anything like scientific exactness and satisfactory practical results, must embrace a study of the condition of the soil on which the micro-organism grows as well as the size and shape of the organism itself. This general proposition applies to trachoma so far as it may be demonstrated to be a microbic disease. But if it shall be found that there is no specific microbe but that it is simply a disease of the adenoid tissue of the conjunctiva, there must still be something which starts the morbid process in motion, and the conditions for its action must be propitious. It seems probable that this beginning may be an inflammation of the conjunctiva of almost any kind. Even an ordinary catarrhal conjunctivitis, the result of dust, smoke, bad air or other irritating influence, may suffice to prepare the ground and set the process going.

The first law, therefore, in the treatment of trachoma and in the prevention of it in those predisposed to it, is the avoidance of those causes which are likely to lead to such an inflammation. They should be kept apart from those suffering from any form of contagious ophthalmia. Over-crowding and badly ventilated quarters should be avoided, and such patients should be kept out of all forms of vitiated or irritating atmosphere. They should not follow any occupation in which there is dust or smoke. Out-of-door employments are not to be unreservedly recommended, since it is precisely in these that such conditions are likely to exist, especially as regards dust. This applies with especial force to general farming; for in field work of many descriptions, harvesting, threshing, etc., there is commonly a great deal of dust, while the ammoniac fumes from the ordinary farm stable are extremely irritating to the conjunctiva. For the same reason dry and dusty localities are to be studiously avoided.

The effect of climate has not yet been studied sufficiently to enable us to form a just estimate of its significance. In and of itself temperature seems to exert but little influence. Cold and hot countries are free and affected in nearly the same degree. Humidity and dryness also are not by themselves apparently of much importance since trachoma is found in both. The influence of climate would appear to depend more largely upon the presence or absence of dust than upon anything else. Of course the habits of the people in regard to over-crowding, etc., as influenced by climate are not without their effect in this particular.

As a rule the countries bordering on the sea are less affected, probably on account of the absence of dust, while the interior lands, subsequent to long drouth, are afflicted more seriously. Some of the most malignant cases we have in the central portion of this country are to be found among the inhabitants of the country districts of Kentucky and West Virginia. Further investigation is much needed on this point, and it is hoped that observation will in future be more specifically directed to the meteorologic conditions as influencing the development of this disease.

The same may be said of altitude, for we have found that altitude alone does not give an immunity. It is seen at the height of 10,000 feet above the sea-level in Colorado and in the mountains of the Tyrol, and I have seen it among the mountains of East Tennessee 1,000 feet. On the other hand certain countries at the sea level as Ceylon are entirely free. It would seem to be a fact, however, that other things being equal a high elevation, if not dusty, exercises a beneficial effect on the course of the disease, most probably on account of its bracing effect on the general system.

TEN YEARS' EXPERIENCE WITH THE SURGICAL TREATMENT OF TRACHOMA.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1-4, 1897.

BY HAROLD GIFFORD, M.D.
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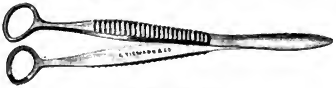
Although the idea of treating trachoma surgically is at least as old as the days of ancient Greece, it received very little attention in modern times until about 1890. To be sure, occasional writers, Galezgowski, Mandelstamm, Schneller, Hotz, Prince and others, had urged upon the profession one surgical procedure or another, but when I first began to devote myself to ophthalmology in 1882 and for eight years thereafter, surgical measures had practically no place in the treatment of trachoma in a great majority of clinics in this country and in Europe. In the years 1890–92, however, ophthalmology suffered from what amounted almost to an epidemic of surgical cures for trachoma, and cutting, brushing, burning, scraping, squeezing and scarifying were recommended with an enthusiasm born of incomplete observation and hasty generalization. Nearly all of these methods were warranted to cure the great majority of cases in from one to four weeks and the prospects opened up to the general practitioner and to the oculist with a number of old trachoma cases on his hands, were so brilliant that it is not surprising that bluestone and nitrate of silver went to a discount, while Knapp's roller forceps and other mechanical appliances rose in favor correspondingly. Those, however, who had for several years previous to this epidemic been treating trachoma by surgical methods knew that these high expectations would not be fulfilled and that a reaction was inevitable. The signs of this reaction are now apparent enough and I think it not unlikely that unless the good which can be accomplished by surgical measures be urged systematically and with moderation, in fifteen years they will have no more of a place in ophthalmology than they had ten years ago. The trouble with these methods is that while each of them can do some good, no one of them is applicable to all sorts of cases, and it is even rare that any one of them is sufficient for any given case.

I began treating my trachoma cases surgically in 1886, and while the brilliant results which at first I thought I secured afterward, in many cases, turned out to be only moderate, I have persisted in the use of squeezing, cutting, scraping, burning and scarifying, each in its proper place, combined, nearly always, with applications of nitrate of silver and sulphate of copper, and have learned to make use of them in many cases in which, by some authorities, they are considered contra-indicated. The only cases in which I consider them, as a rule, contra-indicated are those of acute trachoma; for the great majority of these, if seen within a few days from the start, can be cured in from three to six weeks (and occasionally in much less time) by a thorough daily application of the sulphate of copper crystal to the retrotarsal folds. When at the end of the latter period there are still marked signs of infiltration, the use of expression or the excision of a strip from the folds is generally indicated.

With regard to the technique of expression, I use forceps, to be described later on, going over the tissues at least three times, with gradually increasing pressure. In this way the trachomatous foci are first broken up and then thoroughly squeezed out, without so much tearing of the folds as sometimes results if the attempt is made to squeeze them out completely at once. To prevent the adhesions which otherwise often give much trouble in the after-treatment, I have of late, at the close of extensive operations, everted each lid by two stitches, which are passed through the edge of the lid and the skin of the cheek or brow. A moist dressing is then applied, the moisture being retained by gutta-percha tissue and the cotton which comes next to the everted lids being well coated with sterilized white vaselin. This and the stitches are removed permanently after twenty-four hours and by that time the abraded surfaces are so thoroughly glazed over that there is little or no subsequent trouble with adhesions. In some cases where the dense non-gelatinous nature of the infiltration of the folds and the edge of the upper tarsus indicate that expression alone will not get rid of the trachoma quickly, I combine expression, excision and sharp curetting at the first operation; the gelatinous portions of the folds being squeezed, the rest excised and the tarsi well scraped. With regard to the technique of excision of the folds, I use none of the clamps which have been devised for facilitating the operation, but simply raise the everted fold with a fine-toothed forceps and excise as broad a strip of it as seems necessary; and in the case of the upper lid I generally cut out from the central edge of the tarsus a strip from one-twelfth to one-eighth of an inch in breadth. I have never felt like going as far in this direction as Heisrath (*vide* Lehmann, "Inaug. Diss.," Königsberg, 1895) who, in many cases, excises nearly the whole tarsus, leaving only a strip 1 to 2 mm. in width at the ciliary margin; though I have no doubt that, in many cases it is an excellent method of getting the patient into a tolerable condition; and from what I have seen of one of his cases, it produces none of the bad results which, *a priori*, one might expect to follow so radical a procedure. Where the strip excised is narrow and includes little or none of the tarsus, no suture is required, a few days bandaging is enough; otherwise, I close the wound with a continuous suture, starting and finishing at the extreme ends of the lid, so that the knots are left on the skin side. This I consider important, because the knots of interrupted sutures are apt to irritate the cornea. I have seen one case in which serious ulceration was started by them and that this is not unusual I judge from the remark of Lehmann (*loc. cit.*, p. 12) who, in reporting Heisrath's excisions, naively remarks that if the patient complains of much pain it is best to remove the bandage and see if the sutures are not causing ulceration of the cornea.



Trachoma Forceps.

The squeezing out of gelatinous matter can be accomplished with greater or less facility with any of the various forceps invented for this purpose. The original ring forceps of Prince is very efficient, and Noyes' stocking forceps has advantages in certain cases. One of the best all-round forceps was devised by my former colleague, Dr. Graddy, now of Nashville, Tenn. Knapp's roller forceps, though ingenious in principle, are not so useful, in my opinion, as any of those just mentioned. They can only work in straight lines, which makes them very unhandy for working in the pockets at the extremities of the lids; and the rollers are necessarily so thick that if the conjunctiva is atrophic, the infiltrated areas often can not be grasped by them. In the forceps which I use, I have had combined the advantages of the ordinary ring forceps, the strength and breadth of blade of Graddy's instrument, and at one portion of the ring, the narrow edge of Noyes' stocking forceps. In certain old cases with much atrophy of the conjunctiva, one not infrequently sees areas of infiltrated tissue in the corners, which can not be seized and properly expressed with any other forceps that I have seen. The butt end of this forceps is made of a single piece of rounded and thin-edged metal, thus forming a very useful instrument for squeezing, between it and the fingers, portions of the tarsi which can not be seized to advantage with the forceps blades.

Cases of old and so-called cicatricial trachoma are by many excluded from surgical treatment; but these are just the cases where it is of infinitely greater benefit than any form of medical application. Here, besides expression and excision, scraping with a sharp spoon, the actual cautery and scarification, followed by some medical application, are of the greatest value and will often produce the most rapid kind of cures. Occasionally the procedure of Noiszewski, namely, the deep excision of the diseased tarsal conjunctiva with grafting of lip membrane to replace it, is in order. I have tried it with good results in a few cases where the disease was so deep-seated that nothing but excision or the deepest kind of scraping or burning would remove it, and yet the membrane was so atrophic that practically no lining for the lids would remain after such measures, unless grafting were done. The use of the actual cautery I generally limit to cases in which small, deeply infiltrated islands of trachoma occur. Where these islands are larger I use the sharp spoon or scarification. Brushing seems to me to be a very crude and inaccurate method.

In nearly all cases, except the acute ones, some sort of surgical interference is called for more than once, and in the intervals between the surgical proceedings, the application of sulphate of copper, nitrate of silver or some other astringent or antiseptic is called for; and in many cases all the surgery which I think it safe or advisable to use upon the lids does not prevent the necessity for many months of medical treatment. I have spoken of sulphate of copper and nitrate of silver as equal in efficiency, but on account of the great advantage which copper possesses in not staining the tissues it is the only application which I recommend for a long continued use. The staining caused by silver is a disadvantage not merely from a cosmetic point of view, but because it renders intelligent treatment much more difficult by disguising the line between healthy and diseased tissue.

Finally, a word as to the dangers of the surgical treatment of trachoma. Some years ago I wrote a paper on this subject, in which reference was made to two cases of my own in which the cornea had been somewhat injured by ulceration following the use of surgical measures; while in the case of four other eyes, in the practice of other physicians, sight had been completely lost from a similar cause. Since then other writers have reported unfortunate results of the same sort and have confirmed me in the conclusions at which I then arrived, namely, that while the surgical treatment of trachoma is of great value in nearly all classes of cases, for the majority, it is not a swift and unfailing cure (unless we include follicular conjunctivitis); and where there is non-vascular ulceration of the cornea, its use may be attended with the most serious danger to sight. If I had to choose between the exclusive use of either the medical or surgical treatment of trachoma, I should certainly choose the medical, for with it nearly all cases can be kept from injury to the sight; and most cases can in time be cured. The surgical treatment is of great value, but I seriously question whether in inexperienced hands it will not in the long run do much more harm than good; for not only is there direct danger to the cornea in some cases, but where relapses occur after its use, I have a decided impression that the disease gets a deeper foothold in the tissues and is more apt to cause ulceration of the cornea than when medical applications alone have been employed. Instead of simplifying the treatment of trachoma, the introduction of surgical measures has decidedly complicated it, and no one should use them who is not thoroughly versed in the diagnosis and treatment of all diseases of the conjunctiva and cornea.

TRACHOMA, ITS RELATIVE INFREQUENCY IN SOUTHERN CALIFORNIA.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY H. BERT. ELLIS, B.A., M.D.
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Although there is not a perfect agreement among pathologists as to the identity or non-identity of follicular conjunctivitis and trachoma (that is, as to whether they are independent affections), still the recent text-books on ophthalmology are almost unanimous in making a clinical if not a pathologic distinction between these manifestations. It is not my intention, nor is it necessary in a paper of this description, and on such an occasion, to enter into a dissertation giving the details of the arguments that have been, and are still being brought forward to prove the sameness or dissimilarity of these diseases. It is sufficient for the purposes of this article to state my own position in the controversy without giving the reasons for "the faith that is in me," and thus prevent any misunderstanding of terms.

"Granular lids" is a phrase that I but rarely use, and then always as a synonym for trachoma (Dr. Burnett to the contrary notwithstanding), a specific disease ordinarily depending on the transference of secretion from some other affected eye. Follicular conjunctivitis I believe to be entirely independent of the former, and not an early manifestation or stage of trachoma, but as in many other clinical conditions, differentiation is not always easy and both diseases may be present in the same eye at the same time.

As oculists we must all realize that to the laity all roughness of the conjunctivæ is, and all sandiness and smarting the result of, "granular lids." To what extent the general practitioner is accountable for this view I do not know, but I fear his responsibility is great; and I think that as a society and as individuals we should use every endeavor to correct this false, or to speak the best for it, this imperfect view. It seems to me that the terms "granular lids" and "granular conjunctivitis" should be eliminated from our vocabulary as not being scientific, and because they serve no useful purpose, but on the contrary tend to confusion.

In order that this paper might not express the views of the writer alone, and in order to know what the other oculists of Southern California thought concerning the relationship of these diseases, I sent the following questions to the leading eye men in Los Angeles and the surrounding country from Bakersfield in the North to San Diego in the South:

1. Do you make any distinction between follicular and granular conjunctivitis? If so, what?
2. In your ophthalmic practice in Southern California have you observed granular conjunctivitis (trachoma) frequently? In about what percentage of your cases?

While these questions were not designed to cover the field of the pathology of the diseases under consideration, they were sufficiently comprehensive to discover the manner in which the different men used these terms, and by this means I believe I have been able to quite accurately substantiate the inference of the title of my paper, that is, that trachoma is relatively infrequent in Southern California.

I tabulated the replies of the best known oculists in the southern portion of my State, and it was worthy of note that nine out of the ten differentiated between the diseases; that but one said there was practically no difference, and even he found only 1 per cent. approximately of both conditions together.

There were nearly as many ways of distinguishing between the affections as there were replies to my inquiries and the summary would seem to indicate that the differential diagnosis was not sufficiently clear to each one of the writers, as to make it possible for me to believe that each of the oculists was always absolutely certain of his diagnosis. However there was sufficient similarity and unanimity to show that the broad distinctions were concurred in by most of the writers. Nearly all considered trachoma or "granular lids" a specific disease, in all probability contagious, occurring principally among the poor who live in crowded and filthy localities. Follicular conjunctivitis might or might not be contagious, occurring more frequently among the "well-to-do." Trachoma always leads to the destruction in a greater or less degree of the conjunctival tissue, while the follicular trouble may exist indefinitely and yet result in no loss of conjunctiva. Every one replied that trachoma was relatively infrequent in this section of the country. The percentages varied from 0.5 of 1 per cent. to 2 per cent., with the exception of one which was 5 per cent.; but the man who gave this report had been here but a year, and remarked that most of his cases were chronic and imported from the East.

In my own practice, extending over a period of eight years in Los Angeles, I have had less than 1 per cent. of trachoma, including both my private work and college clinic, and the cases were about equally distributed among the poor and wealthy. Follicular conjunctivitis I have found relatively more frequent, but these cases do not reach higher than 5 per cent.

Why trachoma should be relatively infrequent in Southern California I do not know, but the statement of a few facts may throw some light upon the subject. We have a cosmopolitan population; the Irish, the English, the Scotch and the German; the Frenchman, the Italian and the Spaniard; Jews from all countries, negroes, "Japs" and Chinese, but mostly Americans. But the trouble is not confined to any particular nation. In no part of our city are the inhabitants particularly crowded. The great bulk of the population lives within twenty-five miles of the ocean and at an elevation of less than 1,000 feet. The climate is such that an out-of-door life is the rule. This fact with our relatively good sanitary conditions, helps to render our poorer citizens comparatively healthy and so they are enabled to resist, or rather they are rendered less susceptible to contagion of any kind.

THE SURGERY OF TRACHOMA.

Presented to the Section on Ophthalmology, at the Forty-eighth
Annual Meeting of the American Medical Association
at Philadelphia, Pa., June 1-4, 1897.

BY S. LEWIS ZIEGLER, M.D.

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Surgical procedures for the relief of trachoma are only indicated in the chronic stage of this disease, and especially for the relief of the complications and sequelæ, the most common of which are pannus, ulcerative keratitis (chiefly in the form of multiple erosion ulcers), blepharophimosis with its accompanying lid friction, and mucopurulent discharge or epiphora. A more remote sequela is the contraction which results in ectropion, or entropion with trichiasis.

Without going deeply into the subject of the *etiology* of trachoma, there is no doubt but that the essential elements in its *persistence* are, a partial occlusion of the tear duct, with consequent epiphora and regurgitation of septic secretions; a perversion of the ocular secretions themselves; the maceration of the cornea from the excessive amount of secretion and discharge present, and finally friction from tarsal pressure, with erosion of the corneal epithelium.

In the first place we can definitely assert that the persistent growth of the granulations which have already formed is kept up by the continued moisture present, together with the irritation of the septic secretions, just as polypoid growths increase in the presence of moisture. Furthermore, the tear-duct, even if it were not originally at fault, through participation in the inflammation and subsequent contraction, with a like perversion of the secretions contained within its lumen and the partial abolishment of its capillary action, due to its thickened mucous lining and viscid contents, not only prevents the tears from passing downward, but really adds to the trouble by the constant regurgitation of these septic secretions; in fact, not infrequently the local inflammation has gone so far as to have broken down the lining membrane of the tear-duct and involved the bony canal itself.

Manifestly then, the first object to be accomplished is to secure a patulous tear-duct, by means of *rapid dilatation.* It has been my custom for several years past to accomplish this without any incision of the tissues, as the latter only leads to subsequent cicatricial contraction. This is done by first introducing a needle-probe into the lachrymal puncta and passing it through the cartilaginous canal; it is then withdrawn and a conical dilator[1] with a maximum size equal to that of a No. 10 probe is passed through the cartilaginous canal, and thence through the bony canal into the nose. It is seldom necessary to repeat this procedure in order to maintain a patulous duct, but occasionally there will be sufficient contraction to require a second dilatation. By this method, without incision, the capillary action of the duct is retained and the current of lachrymal drainage directed downward toward the nasal orifice.

The second procedure is the operation of *canthoplasty,* to relieve the friction of the lids, and, at the same time, the tendency to maceration, which is an unavoidable accompaniment of this condition. This operation should be a more extensive one than that usually employed; in other words, a simple section of the external canthus with the scissors will not give sufficient relief to accomplish our purpose. The section of the lids having been accomplished with a pair of strong curved scissors, with the curve turned upward to correspond to that of the upper lid, a section of the external canthal ligament should follow, which can best be accomplished by grasping the end of the incised upper lid with a tenaculum or strong rat-tooth forceps and exerting slight traction, in order to make tense the superior canthal ligament, which is then cut with a pair of small scissors as near to its bony attachment as possible, in order to avoid any traumatism of the lachrymal gland. Sutures are then inserted in the usual manner, the conjunctiva and skin being brought together neatly.

Ordinarily if these two procedures are thoroughly and boldly performed but very little other treatment will be required, unless there is still some regurgitation from the tear-duct, in which case the nasal condition on that side should have some sedative treatment, and if, as is frequently the case, there are adenoid vegetations present operative measures for their removal should be at once undertaken. For the relief of the granulations themselves, slight scarifying of the lid, followed by the use of Knapp's roller forceps will usually accomplish all that is desired. If, however, hypertrophy is still persistent, electrolysis as suggested by Dr. Johnson, or the galvano-cautery may be required to reduce the exuberance and hasten resolution.

Certain other measures have been suggested from time to time, but do not appear to have the value that those outlined have shown to possess. Burow's operation, consisting of an incision of the superior tarsal cartilage along the whole inner margin of the lid, thus making a flail-like hinge, does not yield any more freedom from blepharophimosis than an *ordinary* canthoplasty, and by no means as much as canthoplasty combined with section of the superior canthal ligament. The operation of peritomy or syndectomy, consisting of a section of the blood vessels around the limbus corneæ, is not always successful in stopping this vascular invasion, and I have never found it necessary in cases where rapid dilatation and canthoplasty had been performed.

The local treatment to be applied to the mucous membrane itself should be of a mildly astringent character and not sufficiently irritating to keep up the disturbance. Tannin and glycerin may be applied every day, or on alternate days, while the nasal disturbance is best relieved by applications of tr. benzoin comp., which is antiseptic, astringent, depleting and stimulating. The multiple erosion ulcers generally disappear as soon as the friction and maceration have yielded to the treatment that has just been outlined. The relief from friction, pressure and maceration and the free drainage of the septic secretions seem to promptly bring about resolution and hasten convalescence.

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DISCUSSION ON TRACHOMA.

Dr. **Herman Knapp** of New York—I did not hear the paper of Dr. Weeks but as regards the treatment of trachoma we have certainly to distinguish two kinds of trachoma clinically, which I would like to call non-inflammatory or simple, and inflammatory. I meet in New York a relatively large number of cases where there is no trace of inflammation visible. Sometimes the discovery is made accidentally; when the lids are turned, the upper and lower retrotarsal folds are found more or less completely studded with granules. In the course of time, and by unfortunate circumstances, those granules will produce irritation and inflammation of the catarrhal kind, and so we get the mixture of pathologic condition which we call inflammatory trachoma, and this is certainly contagious, as the reverse process may take place just as well. These two conditions indicate different methods of treatment. For the simple granules, which may be excessively numerous, with no inflammatory symptoms, I know of no better remedy than the surgical treatment with some kind of forceps. I saw Dr. Noyes use his forceps, and I thought that a forceps that would be equally efficient in removing the granules and more saving with the tissue would be best, so I made the roller forceps. I do not go over the surface once or twice, but repeatedly, and with always a moderate amount of pressure. This I do in all parts of the conjunctiva. Nothing should be omitted. In the majority of cases medicinal treatment is necessary; there is only a relatively small number where surgical treatment alone will produce a cure, but it is possible for them to get well by surgical treatment, and I have in mind even that they will get well without treatment, but this I can not very well ascertain from personal observation, for I have never allowed myself to send a patient home and then watch him for a year. It would be, however, a permissible experiment. As for after-treatment, I mostly use sulphate of copper, applied every day and very mildly, but especially in the posterior retrotarsal folds.

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[1] The dilator is the writer's modification of the one devised by the late Dr. Lewis. It is made by Gemrig & Son.

I am quite in accordance with Dr. Burnett that the cleanliness of the atmosphere has a great influence on the treatment, just as it has on the production of the disease, for I know patients that I can take to a well-ventilated hospital, unlike their crowded homes, get well in a shorter time and show generally better results. When the patients go home it is necessary to watch them, because relapses, though in the minority, are not infrequent. If they expose themselves to an impure atmosphere they will have the same conditions and reproduce the disease.

With regard to the harmfulness of mechanical treatment, and especially the roller forceps, I am astonished to hear of the destruction of the cornea. I do not remember one single case where, by the roller forceps, a corneal ulcer was produced, or an existing one aggravated. In no case was there any such thing as sloughing, and I think that must be entirely accidental.

With regard to adhesions, I have seen two cases; I mean not of one part of the conjunctiva to another, but to the eye ball, symblepharon.

Dr. GIFFORD—I referred more particularly to adhesions in the conjunctiva of the lids.

Dr. KNAPP—I think the retrotarsal fold shrinks and gives the impression of adhesions, but it never distorts the lid at all, and I think we need not be afraid, on that account, to use the forceps. I would like Dr. Gifford, in closing, to explain more fully about going into the cicatricial conjunctiva to find trachoma foci; I have had no experience with it.

Dr. HAROLD GIFFORD of Omaha—With regard to Dr. Würdemann's paper, I disagree less with him than I expected to. I was expected to "rip him up the back," but I find small chance to insert the knife. I am in accord with him fully on the pathologic process so far as the microscope is concerned. I do not think you can distinguish with the microscope between trachoma, the papillary condition after gonorrheal conjunctivitis, and some forms of follicular catarrh. I have the best reasons for believing that trachoma is a contagious disease, for I contracted it myself from squeezing a granule and having a drop fly into my eye; I had the disease for two years. I have cases in which I wish for something new every now and then, but I have not branched off from the old treatment of silver and sulphate of copper, and the latter is my main reliance. After reading the original communications in which such good reports were made for argentanum, I sent for some of it and treated one case by applying argentanum to one lid and nitrate to the other, but I was disappointed to find that the former had less effect. Whether it will eventually stain the lids remains to be seen.

As to the method of treating cicatricial trachoma I do not wish to be understood as saying that where trachoma has run its course in certain portions of the lid you can take those portions and squeeze any matter out from them, but in all my cases I only know of one exception, in thousands of cases which I have treated, where I could not find undoubted foci of trachoma thickening. You would see some thickness, and on squeezing get quite a bubble of gelatinous matter. I was surprised to find it so. Where everything is atrophic there is no use in squeezing. This condition may keep up continuous ulceration of the cornea. It is found particularly toward the inner side, and by turning out this little area and burning it with the cautery, or scrape it out (I prefer the cautery), I have been able to cure them within a minute or two.

Before finishing I want to pay a tribute to Dr. Hotz's contribution to the treatment of trachoma. In the first place, his method of squeezing out the follicles with the thumb-nails was a decided advance, and while I do not think it is the proper method to continue now, it served to call the attention of the profession to the treatment. Dr. Hotz was the first man to insist on the method of pressing back the globe to force this fold of tissue into view. In regard to the treatment of the edge of the lid, Dr. Hotz described his method of putting in a skin flap in addition to his original operation. I am not prejudiced against the use of skin, for I was one of the first to suggest the use of the Thiersch flaps. I found a great many cases where the entropion would be cured entirely, but a little of this skin would be turned in to rub the cornea and while in many cases it produced no irritation, in some it did and made me want to get it out. So I use skin no more, but mucous membrane almost entirely. If you put skin into the under surface of the lid it stays skin, and does not become mucous membrane. You can scrape up rolls of epithelium with the nail for a long time, and it also collects there to decompose and produce irritation.

Dr. FRANK ALLPORT of Chicago—I have been much interested in the discussion of trachoma and its consequences. The subject appears to have been quite thoroughly exhausted and there remains but little to be said. Dr. Hotz's idea of the cause of entropium is certainly very seductive and plausible, and while I believe entropium to be frequently produced by contraction of the tarsus and conjunctiva, yet I have seen many cases where a dislocation of the soft portions of the lid covering the tarsus was the only evident pathologic condition. Dr. Hotz has so long been regarded as an authority on the subject of lid surgery, that I think but few of us would have the temerity to question any statement he might make, and I have nothing but praise to say of his operation for entropium, which I have used for some fifteen years with thorough satisfaction. I sometimes vary the operation by a canthoplasty or a transplantation of tissue into the lineal gaping wound along the margin of the lid, or the removal of a piece of cartilage from the face of the tarsus, or even the removal of some skin in people possessing very redundant lids; but Dr. Hotz's operation as described by him many years ago and reiterated in the paper which we have listened to has formed the basis of all of my entropium operations for many years, and I have never had reason to regret my allegiance to this procedure. By using the tip of the tarsal cartilage as a fulcrum upon which to evert the palpebral margin we have a firm and substantial point upon which we may depend, and therefore the operation is built upon a sure foundation. The mistake is sometimes made of making the cutaneous incision a little higher than the tip of the tarsal cartilage. In this event we will not secure the full benefit of the operation, as it is necessary that the incision should be nearly on a line with the tip of the cartilage or a little below it in order to evert the marginal lashes. I have known operators to discard Hotz's method where the cicatrix plainly showed that the line of incision had been too high, and consequently practically useless. Concerning the objections to Dr. Knapp's roller forceps, I have only to say that I have used them with thorough satisfaction for a number of years and have never seen any of the accidents to the cornea which have been reported as following their use. I can not but believe that the abraded or ulcerated corneæ that some gentlemen report have been due to a careless use of the instrument, which is more or less bulky, and may very easily abrade a cornea unless due care is taken. In using the instrument, I think the patient should first be thoroughly, generally anesthetized, as the operation is very painful, and the cornea may easily be injured during the struggles of an unanesthetized patient. The lid should then be gently but completely raised from the eyeball before the roller forceps are put in place, and this idea should be observed during the whole course of the operation. The expression of the trachomatous granules should not be done with the vigor which I have sometimes seen used. The forceps should be gently and repeatedly rolled, or milked, over the conjunctiva, which will produce in time a thorough eviscerating of the granules without the tearing and stripping of the conjunctiva which is complained of by some operators. I believe if Knapp's roller forceps are used in this way they will fulfil the purpose of any forceps designed for the eviscerating of trachomatous granules. After the granules have been thus expressed, a wealth of valuable and reliable methods of treatments may be adopted, and it is well to change the treatment from time to time. For several years I have been especially wedded to the boric acid powder, profusely dusted upon the everted lid and vigorously rubbed into the conjunctiva with the tip of the finger. This treatment is especially adapted to those cases of trachoma complicated with the various forms of keratitis, and although very efficient *is not irritating*. I have also lately used with much satisfaction a 1.5 per cent. solution of the pure iodin crystals in oil of vaselin freely daubed upon the lid by a camel's hair brush. These two methods are merely suggestions which I have found valuable in my practice when I desire to change from the old orthodox copper and nitrate of silver applications. As I have seen some operators who have sustained infection from the spattering of the trachomatous granules into their eyes during an expression operation, I would beg leave to suggest that as a matter of self protection we should use large isinglass eye-protectors while performing such operations.

Dr. S. Lewis Ziegler of Philadelphia—In regard to Dr. Knapp's forceps, I use a much shorter and thicker roller than I have seen here, because I can get into the folds so much better. In using them I draw them *diagonally* across the lids instead of straight up and down, and in that way do not pull so hard on the retrotarsal fold. There is very little reaction following this procedure, but where it does occur ice compresses will relieve it. I believe that no matter what the original cause of trachoma may be, the tear-duct has a considerable influence not only in the initial stage but continues as a disturbing factor at all times.

Dr. F. C. Hotz of Chicago—I was very much interested in what Dr. Gifford said regarding the isolated foci in the cicatricial stage, for it fully tallies with my own observations; I have many times seen this. When the lid looks perfectly smooth we may on careful inspection find these little foci. Another matter of importance to scrutinize is the condition of the Meibomian glands, which often lead to the formation of small pus foci in the lid; these ought to be punctured. I was rather surprised to hear of the danger of adhesions forming in the retrotarsal folds. I have to relate that existing ulcerations have not been aggravated, and squeezing out the follicles never produces them, but on the contrary the beneficial effect of the mechanical removal of the follicles upon the inflammatory processes of the cornea, I have often remarked; within twenty-four hours I have seen the most irritated eyeballs become quiet and the inflammation of the cornea subside. I have never seen adhesions, and I wonder why it is. I can only account for it, by the different methods and probably different instruments used. It has been mentioned by Dr. Gifford that I suggested using the finger nails for squeezing the follicles. That might give the impression that I picked out the follicles, which is not correct. The way I do, and which I still regard as the most gentle way of evacuating the follicles in the upper lid, is to evert the lid, press the eyeball back, and while the thumb is on the everted surface of the lid the thumb of the other hand is placed under it, and you have the pressure of the two through the lid upon the fold, and the follicles can be evacuated, and you can gauge the pressure better by the fingers than by any instrument. On comparing the different forceps, I find that many of them have blades which when closed form almost scissor blades, and some are curved so that the conjunctiva is locked up in them, and when traction is made it is no wonder that laceration results. If the forceps blade is curved and absolutely rounded so that by the strongest pressure even the conjunctiva can not be held, extensive laceration can not occur. I would like to make one remark in reference to the implantation of skin in the lids. Dr. Gifford said that skin remains skin, and that is true, but if he says that desquamation of the skin continues and acts as an irritant, I beg to differ with him. I have never seen any irritation in my cases, and I have noticed after implanting skin-grafts, in cases of pterygium, that this desquamation ceases and the tissue looks smooth as conjunctiva, and you can scrape off no cells.

Dr. A. C. Corr of Carlinville, Ill.—I have a mental obliquity that makes me unable to see that trachoma is a disease of itself and of its own kind. I have seen nothing to convince me, and am not fully persuaded that it is so. I think it is a pathological condition growing out of a progressive inflammation of almost any kind. The follicular process is a diseased condition resulting from various causes (reading from manuscript). It was with great gratification I heard Dr. Knapp say that he had seen cases where no inflammation had preceded. I have everted the lid of persons who did not suppose they had any trouble with the eyes and discovered these sago-like grains. If you turn down the lower lid of many school children you will find the first stage of the follicular conjunctivitis, and it may get well without any treatment at all. If it goes on it will produce the condition you are familiar with, and I think may lead to thickening and chronic trouble.

Dr. G. C. Savage of Nashville—It would be well to go into the history of Dr. Gifford's own case; I have that history. At the same time that the Doctor's eye was infected his associate got some in his eye. The latter at once had instilled a 10 gr. solution of nitrate of silver. He did not develop a case of trachoma, and Dr. Gifford did. We had a similar example a few years ago. Dr. Price got some of this material in his eye. I gave him nitrate of silver immediately and he did not develop trachoma. That leads me to say that Muttermilch is not far from being right when he says that the germ is to be found early in the epithelium, and if we have some remedy to go into the epithelium and destroy them all will be well. We have a remedy that will destroy the epithelium, that is nitrate of silver. Acetic acid might be expected to cure them before they get into the epithelium. I have used silver in the strength of 120 gr. to the ounce and quickly neutralized it by potassium iodid. The first case of this kind occurred as an accident. I have entirely given up the use of sulphates in the treatment of conjunctival troubles, because I think I have in the acetates a class of remedies that accomplishes just as much without doing any harm.

Dr. H. V. Würdemann of Milwaukee—It is impossible to fully discuss this subject upon which many of us might write a volume, so I shall only take up a few of the points. It is certain to my mind that trachoma is a condition that supervenes upon a number of different irritations that might be caused by different infections. It is a condition largely brought about by mechanical irritation of a dust-filled atmosphere. In the Northwest we have a large foreign population, and we have the conditions in some portions of the country depending upon the atmosphere entirely. Our confrère, Ole Bull, states that he has seen but three or four cases of trachoma in his part of the country, although the condition of the peasantry is deplorable. He remarks that in his country washing and changing of the underwear is believed to be an unnecessary luxury, but even there he has seen very little trachoma. In regard to the use of powders, etc., I beg to remind Dr. Gifford that argentanum is of less strength than silver nitrate, and that comparisons should be made with comparative strengths. The principal point I want to bring forward is, that in local applications it is necessary to bring the fold into view and make the applications to that. Where the small hard granules appear they may be readily destroyed by the galvano-cautery. Burchard has made over three hundred and sixty applications to a single lid in several sittings, in many of them making fifty to one hundred punctures, and the cases have been cured.

Dr. S. M. Burnett of Washington, D. C.—I am sorry to hear so little said in regard to the hygienic treatment in the care and prevention of this disease. However gratifying to our vanity to perform brilliant operations, we must remember that in our profession it is a higher function to prevent than to cure disease. In order to prevent a disease it is necessary to know its natural history, and we should know the conditions of the individual and his surroundings. It seems to me that part of this subject has not been thoroughly studied. The time is coming when we should give more attention to the matter than we have in the past. It is only by collective investigation that we can study this in reference to the race, climate and habits of life and the conditions that surround the patient at the time of the development of this disease. When we do that we shall enter upon the peformance of our highest duties as medical men.

Dr. A. E. Bulson, Jr., of Fort Wayne, Ind.—One thing that interests me particularly is the question as to whether this disease is contagious. An instance that occurred to me has led me to believe that it is transmissible, and I will report the case. I attend an orphan asylum, located in a high and dry portion of the city and possessing good sanitary conditions. About two years ago my attention was called to a well-marked case of trachoma that had come into the institution a few days previously. I immediately informed the assistants to watch the case and keep it practically isolated, for otherwise we would have trouble with more cases. The advice was not heeded and we soon had a typic epidemic of trachoma in the institution. We had 165 cases and the last of them is not over yet. Those cases I consider all developed from the one child. It is not a dusty locality nor a dirty one, and the children are kept as neat and clean as possible. The treatment of these cases consisted principally of the use of Hodge's mixture, advocated by this Society in 1887. Some of the cases, eleven or twelve, were operated upon with Knapp's forceps. In a few of the cases powdered boracic acid was used and I was favorably impressed with its action.

Dr. A. E. Prince of Springfield, Ill. Taking up Dr. Hotz's paper first, I would speak with reference to the line of incision. I commenced practicing the operation for inturned lids by making the incision recommended by Dr. Hotz, but I soon lowered the incision until I came to within 3 mm. of the lid margin. I did this almost without knowing it, and on one occasion, while reviewing the papers of Dr. Hotz, I found a footnote in which he described the operation of a Greek surgeon, and I found that I had been doing that operation. Dr. Knapp has called attention to the non-inflammatory trouble. I have seen three cases. In all these cases it disappeared without surgical treatment, and I think in such cases the indication is not to operate. I have not seen the adhesions spoken of and I attribute it to the fact that the instruments I use have sharp edges, some of them almost scissors-like, as has been mentioned, and in the next place I apply cocain to prevent pain. I take a 10 per cent. solution, saturate a pledget of absorbent cotton, place it upon a piece of rubber tissue and slip that up in the retrotarsal fold and closing the lids leave it there for ten minutes. The cornea is protected, the cocain soaks into the lid and you can do the operation without any material pain.

SUBCUTANEOUS INJURIES OF SOFT PARTS.

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VINTON, IOWA.

AWARDED THE J. W. FREER SECOND PRIZE, RUSH MEDICAL COLLEGE, 1897.

(Concluded from p. 62.)

SUBCUTANEOUS INJURIES OF THE ABDOMINAL ORGANS.

The stomach, when of normal size and in its proper position, is so well protected that it is seldom injured by non-penetrating forces. Contusions, laceration or complete rupture may result from a blow or kick, administered over the organ, when in a state of partial or complete distention. Violent emesis has caused rupture of the stomach in cases already weakened by constitutional or local disease. In O'Farrell's[14] case violent vomiting, during fever, caused a rupture of the posterior wall three inches long. Owing to the greater thickness of its walls and its better protection, the stomach is less frequently the subject of rupture than is the intestine. Other viscera are generally involved and the injury is, as a rule, fatal. The seat of the rupture is usually near the pylorus, or greater curvature, though it may be in any part. Morris's[15] case had a tear one and one-quarter inches long in the middle of the great curvature. Gaunett's[16] case had a vertical rupture, almost completely dividing the stomach. Elliot (July, 1895) found a linear tear in the anterior stomach wall, with rupture of the duodenum, caused by the kick of a horse; these wounds were sutured, but death followed, leaving, however, no traces of peritonitis.

Symptomatology.—There is pain and tenderness over the region of the abdomen. If the lesion is simply contusion, with partial laceration, the pain will be circumscribed. A limited inflammation follows, causing adhesion between the affected part and adjacent organs. Vomiting is usually present; bloody vomit indicates serious lesion of other viscera. The stomach may be inflated with hydrogen gas, or filtered air, through a stomach tube. If the walls of the stomach are intact, or but very slightly ruptured, it will be dilated, so that its contour can be made out by inspection and percussion. Complete rupture permits the gas to escape into the general abdominal cavity, causing no distention of the organ, and producing general tympanites. The following case[17] will give a clearer conception of these cases:

N. W., age 32, died June 21, 1892. The patient was supposed to have fallen from a moving train, striking on his abdomen. On admission to the hospital he complained of great pain and tenderness over the abdomen, especially over the upper part, where the skin showed some contusion. No paralysis. Pupils negative. No vomiting. Catheter drew off ℥viij of clear urine. Abdominal tympanites, tender and tense walls. Pulse 100 degrees and feeble.

Next day after admission.—Restless; thready, rapid pulse; expulsive vomiting of greenish fluid; abdominal distention with dulness, except over the epigastrium; exploratory puncture disclosed reddish fluid.

Postmortem examination.—Weight of body 200 pounds. Greenish discoloration. Nourishment good. Weight of heart 5 oz., 11 dr. Pleural adhesions over posterior of both lungs. Lungs edematous. Peritoneum contained about two quarts of reddish, acrid, shreddy fluid, with penetrating, enduring odor. Peritoneal layers rough, and covered here and there with detachable membranes, beneath which were small hemorrhages. Fluid found especially around spleen and beneath liver. There was a small tear in the stomach. Stomach: There was a rupture in the walls of the stomach, near the lesser curvature, two inches from the pylorus; it extended for two inches in the serous coat and to a less extent in the muscular coat, and finally made a small opening in the mucous membrane (Fig. 3). Near the esophagus was a small area of contusion in the stomach, with no lesion of the peritoneal or mucous coat. On the mucous surface there was found a small round perforating ulcer, one cm. in diameter, situated exactly opposite the tear described above, and without any thickened margins, but with much shining mucous membrane, in a very softened state, surrounding the opening. No lesion in intestines.

Diagnosis.—Rupture of stomach; diffuse peritonitis; gastro-malacia, or round ulcer.

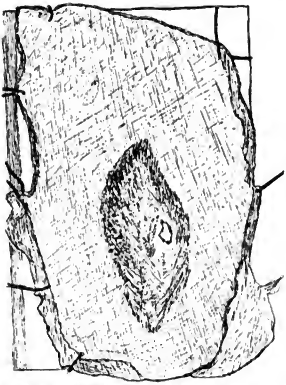

FIG. 3.—Traumatic rupture of the stomach. (Original from specimen in Rush Medical College Museum).

Owing to the fact that the stomach usually contains septic material, peritonitis would be expected to follow in all cases, though such does not seem to have been evident in Elliot's case, mentioned above. In the case just reported, gastro-malacia was an important factor in weakening the walls of the stomach. Shock is usually, if not invariably, attendant on such lesions.

Treatment.—In cases of simple contusion of the stomach, rest and external soothing applications will usually prove sufficient. No time is to be lost in treating complete rupture. The abdomen should be opened by an incision from the xiphoid cartilage to the umbilicus.[18] By repeated inflation the visceral wound can be readily found. If extravasation has taken place, the peritoneum should be thoroughly flushed with sterilized water, and carefully mopped out with an aseptic sponge. After seeing that the stomach is entirely empty and hemorrhage arrested, close the rent by two rows of sutures—the first row is applied to the muscular and mucous coats, and is buried by the second, which includes the peritoneum and enough of the muscular coat to furnish a good hold. It is well to use drainage if the peritoneum has been contaminated. This operation requires all the precaution necessary to avoid shock—external heat, stimulants sub-cutaneously and per rectum. Strychnin hypodermically, and whisky or brandy diluted with warm water, can usually be relied on as stimulants. The patient should be nourished by rectal alimentation for at least four days.

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[14] Lancet, May 19, 1894.
[15] Ashhurst's Encyclopedia, Vol. v, p. 69.
[16] Warren: Museum of the Harvard Medical School.
[17] From postmortem records of Dr. Hektoen.
[18] American Text-Book of Surgery.

The liver is frequently the seat of contusions, which may result in abscess; in some cases, as in fatty liver, it may cause embolism.

Rupture of the liver is usually accompanied by serious lesions of other organs. Wounds of the liver heal readily, and hemorrhage is usually arrested by approximation of the torn edges. In a lad who died four days after being struck in his right side by the shaft of a runaway cab, an extensive tear of the liver, four inches in length, was found, adherent by a blood clot. In this case death was due to acute peritonitis, the skin and bones being unbroken.[19]

Wharry reports a case which illustrates how injuries to the liver accompany those of other organs.[20] The patient fell from a window, striking on the right side of the head and shoulder, and bending the trunk suddenly and violently upon itself. At the autopsy, the liver, lung and kidney on the right side were found to be extensively lacerated, but there was no apparent injury of the thoracic or abdominal walls. The weight of the liver, in this unusual contortion of the body, was one of the important factors in causing the injury.

Treatment.—Where the patient's condition is such as to justify even slight hope of success, the abdomen should be opened and the wound closed. Dalton estimates that in three out of four cases recovery follows operation after stab wounds of the liver, if sponged and drained without irrigation. The same, or an even better estimate would hold good for rupture. Vanverts[21] reported two cases of rupture, both of which were fatal; one in an hour and a half after injury, the other in twenty-four hours. He thought a prompt laparotomy might have saved the latter.

The spleen may suffer contusion from abdominal injuries, but other organs are involved. Traumatic rupture of the spleen results from direct violence, rarely from indirect. Falls, kicks and blows, fracture of the ribs, or a crushing force, as from the wheels of a vehicle, are the common causes. Fracture of the ribs was the commonest accompanying lesion in a number of cases studied. Among these cases was that of a child who had suffered a crushing injury, which had produced rupture of the spleen, total transverse rupture of the left kidney, rupture of the upper lobe of the left lung, with fractures of the seventh, eighth, tenth, eleventh and twelfth ribs; the broken ends of the seventh and eleventh ribs projected into the pleural and peritoneal cavities respectively. Emesis, convulsions and parturition are said to be rarer causative effects. Rupture of the spleen is usually fatal. If the patient is seen in time, an abdominal section should be made and hemorrhage stopped if possible. Excision of the spleen has been performed a number of times. Ashhurst[22] refers to twenty-one successful cases of splenectomy for traumatic conditions. Lane[23] reports two cases in which splenectomy was performed for rupture; both cases were fatal five hours after operation. Reigner[24] reports a successful case. Vulpius[25] maintains that this operation should be performed oftener. He has collected 117 cases of splenectomy, with a death rate of 50 per cent.; deducting thirty-two cases weakened by various pathologic conditions, the mortality of the remaining eighty-five cases is reduced to 33 per cent.

The pancreas, of all the abdominal organs, is the least liable to suffer traumatic injury. Rupture of the pancreas has resulted from severe contusing forces. Located in a very protected position, when injured, other important organs are complicated. If the pancreas should be crushed by a force not fatally injuring other organs or introducing septic material, the injury of itself need not prove fatal. Dr. Senn[26] has proven that subcutaneous crushing or comminution is, in itself, not a fatal or even dangerous injury, unless it interfere with the normal escape of pancreatic juice from the intact portion of the gland. Abdominal section will disclose the condition of the pancreas, and partial excision of the organ is justifiable in conditions seeming to demand it.

CONTUSED WOUNDS AND RUPTURES OF THE INTESTINES.

Postmortem examination has repeatedly demonstrated that blows, kicks, blunt and crushing forces may cause very serious injury to the intestines, without penetrating the abdominal wall. The force of a blow chiefly affects the distended intestines, and that portion directly contiguous to the point of impact.[27] While this may be the rule, there are exceptions, that while establishing the rule, are not self-explanatory. Why is it that some remote organ, carefully stowed away in seeming safety, behind a bulwark of other defending organs, is ruptured or destroyed by a force that leaves all the other organs unscathed? A rupture of the receptaculum chyli has been reported—all the other organs escaping serious injury.

Much damage can be done without external appearance of injury. Some years ago in the dissecting room of Harvard Medical School, a subject was found with the intestines torn in every direction and the spine extensively comminuted, yet there was no evidence of external injury. This subject, a man, had been caught between the dead-woods of two freight cars.

The nature of the traumatic force is an important element for consideration. The quick percussive or contusive blows, are not so frequently fatal as the crushing forces, though more common. A few cases of instant death have followed blows over the epigastrium. It is interesting to note the varied opinion of eminent authorities on this subject. Ashhurst[28] declared "that death may follow a severe blow over the abdomen." Bryant[29] says, "under certain circumstances, a trifling blow may give rise to alarming symptoms." Pirrie[30] considered blows over the stomach or duodenum more dangerous than over other parts of the abdomen. LeGros Clark[31] said, "that if the doctrine be true that a blow over the abdomen may cause death, it must be a very rare accident."

The writer noted, after inflating the intestines of a cadaver, that partial distension of the intestines seemed to increase their mobility, while extreme distention made them stand out firm and resistant. If a contusing force had been applied to the abdomen while its walls were intact, it is easy to understand how the resistant, distended intestine would be much more liable to be bruised or ruptured by the bony spine behind, than the more mobile, partially distended intestine, which would tend to slip aside. The empty intestine is in a collapsed condition, and has little power of escaping injury, when exposed to severe blows or crushing forces; however, it may slip to one side of the bony framework and escape injury. There are many chances for the intestine to escape injury in contusion of the abdomen, and it is important to be mindful of this fact, in considering the early performance of laparotomy for rupture of the intestine. The most common causes of death, after contusion of the abdomen, are hemorrhage and shock.[32] Exploratory incision does not increase the danger, and should be performed. The danger is greatly increased by delay. Some cases of internal hemorrhage, otherwise fatal, can be saved by prompt action.

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[19] Reported by Edgar Willett. [20] Brit. Med. Jour., June 14, 1890.
[21] Presse Méd., October 7, quoted in Am. Med. Jour., Nov. 14, 1897.

[22] Lancet, 1892, p. 692.
[23] Lancet, 1892.
[24] Encycl. Vol. v, p. 1108.
[25] American Text-Book of Surgery.
[26] Senn: Experimental Surgery.
[27] Dennis: Vol. iv, p. 291, et Davis.
[28] Ashhurst's Surgery, p. 391.
[29] Bryant: System of Surgery, p. 217.
[30] Principles of Surgery, p. 596. [31] Encycl. of Surgery, p. 968.

Dr. B. Farquhar Curtis, collected 116 cases of abdominal contusion, with the intention of studying their symptoms during the first six to twelve hours after injury. From the following facts, culled from his compilation, we can form our own judgment:

Causes in 87 cases reported:

	Cases.
Kick of horse or man	28
"Run-over" accident	13
Blow on abdomen by heavy weights	16
Blow on the abdomen by light weights	13
Fall upon projecting points	13
"Buffer accidents"	4

Nearly twice as many were caused by kicks as from any other cause. Evidently the great velocity and the small area of striking surface, are the elements that make a kick so dangerous. These same elements of causation enter into "falls upon projecting points." It is to be noted that "buffer accidents"—a term under which crushing injuries might be classified—are very rare, but four out of eighty-seven.

Location of the lesion, 113 cases reported:

	Cases.	Per Cent.
Injury to the duodenum	6	
Injury to the jejunum	44	
Injury to the ileum	38	
Injury to other parts of the small intestine	21	
Injury to the large intestine	4	
Injury to jejunum and ileum together	43	
Injury to first three feet of ileum	25	58
Injury to first one and one-half foot of jejunum	12	28
Injury to last one and one half foot of jejunum	6	14

These facts support the theory that the danger of rupture is greatest in those parts of the intestine that are the most fixed in their position in the abdomen, but the large intestine must be excepted, on account of its more sheltered position.

The following variety of signs and symptoms were mentioned in these reports:

Shock may be delayed, as noted in three cases, but was present in ninety-five cases, or in 80 per cent.

	Cases.
Consciousness at time of accident	54
Consciousness almost lost at time of accident	4
Consciousness lost at time of accident	11

Vomiting in seventy-two cases out of ninety in which it was mentioned. Urinary symptoms—condition noted in forty-seven cases.

	Cases.
Bloody urine	2
Bladder function frequently disturbed:	
Retention	25
Urination difficult	1
Urination normal	17
Tenesmus	4

Pain in abdomen one of the first and most constant symptoms. Tenderness constant.

	Cases.
Distention of the abdomen	42
Distention of the abdomen absent in	16

Tension of abdominal muscles.

Tympanitic resonance.

An area of dulness, on percussion, was discovered in six cases in the early stage and in two cases in the later stages.

Loss of liver dulness.

Among the later symptoms, temperature, constipation and fecal vomiting were almost constant.

Duration of life—the average in 112 cases was forty-eight hours, after the accident.

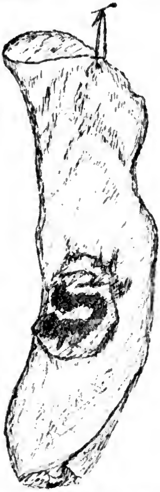

FIG. 4.—Traumatic rupture of the small intestine. (Original from specimen in Rush Medical College Museum.)

We can now sum up the symptoms from the foregoing facts. There is shock, with or without loss of consciousness; vomiting is usually present with the first symptoms, and constipation and fecal vomiting are almost constant later symptoms; there may be retention, or difficult urination, while pain and tenderness are constant symptoms. There will be various signs noted on physical examination—dulness, tympanitic resonance, discoloration, varying with the case and stage of progress; the pulse rapid, weak and irregular at times, temperature subnormal in shock, but rises during peritonitis, when this follows. Figure 4, an illustration of a traumatic rupture of the intestine, is an original drawing from a specimen in Rush Medical College Museum, taken from a man killed by a violent kick in the abdomen, this rupture being the only resulting lesion discoverable.

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[32] Curtis: Am. Jour. of Med. Sciences, October, 1887.

While, in our discussion some of the elements entering into the causation of subcutaneous wounds of the intestines have been considered, the condition of the tissues themselves has not been mentioned. Poorly nourished, diseased tissues will succumb most readily to any injurious force. Figure 5, drawn from a specimen in Rush Medical College Museum, illustrates this fact. The specimen consists of a portion of the pyloric end of the stomach and about two inches of the duodenum, taken from an old man who had received serious subcutaneous injuries, which ruptured a duodenal ulcer just below the pylorus and fractured the second, third, fourth and fifth ribs, on the right side, and the fifth on the left side, besides causing some other very superficial contusions not of a particularly serious nature. Had it not been for the weakened condition of the intestine, due to this ulcer, the lesion would probably not have resulted from a force of no greater energy than the one received.

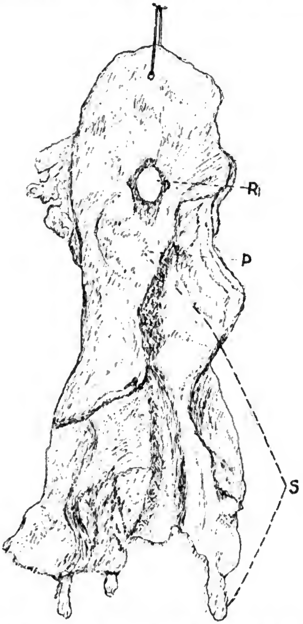

FIG. 5.—Traumatic rupture of duodenum. (Original from specimen in Rush Medical College Museum). R, rupture in duodenum just below the pylorus; P, pylorus; S, folds of stomach.

Treatment.—Patients who have received injuries to the abdomen, which can be satisfactorily diagnosed as simple contusion, should be kept in bed and on an absolute diet for some days, when recovery, as a rule, follows.

If the symptoms point to rupture, laparotomy should be performed, as already suggested. The external incision should be made through the linea alba. First, check hemorrhage. The laceration may be readily found by using Dr. Senn's method, rectal insufflation with hydrogen gas or filtered air. Close up all lacerated wounds, being careful to secure apposition between healthy surfaces, and suture all rents in the mesentery. It is advised that an omental graft be placed over the contused areas surrounding lacerated wounds, so as to avoid subsequent perforation. Flush out the abdominal cavity thoroughly with sterilized water; insert ample drainage; then stimulate to overcome shock. Administer opiates to quiet the intestines and withhold food by the mouth for several days.

SUBCUTANEOUS INJURIES OF THE KIDNEYS.

The kidneys may suffer severe subcutaneous injury from external violence, such as blows and crushing-in the abdominal region; or internal strain, induced by unusual flexion or contortion of the body, as in Wharry's case before cited. Violent shock from falls may cause sudden compression from other organs, as the liver, and may produce contusion or rupture.

Symptomatology.—Simple contusion without laceration sometimes causes prostration and severe pain. There may be frequent and painful micturition, or suppression of urine. The face wears an anxious look. The pulse is rapid and there is fever. If the injury is severe, shock and collapse may follow. Hematuria is the important symptom in laceration and rupture; however, it must not be forgotten that hematuria may occur without any injury to the kidney. It may follow some injury of the abdominal wall, or the dislodgment of a thrombus. Sometimes it is due to transudation from the blood vessels. It may be due to tumor of the bladder, as in Newman's[33] case. Then again hematuria may be absent in rupture of the kidney. Maas reported seventy-one cases, six of which had no hematuria. Four cases in Keen's table[34] were without hematuria. Clots may form in the bladder, as in three of Maas' cases, and stricture or occlusion of the ureter may cause absence of external evidence of hemorrhage of the kidney.

Clot of the ureter may be dislodged and re-form, repetition of the process causing intermittent hematuria. Should it persist, hydro-nephrosis or atrophy results. In Butler's[35] case, a clot completely occluded the left ureter. There was total suppression of the urine for fourteen days. Death ensued, and at the postmortem, the *right kidney* was found cystic and atrophied to one-eighteenth its normal size. The *left kidney* was enlarged, showing evidence of old and recent inflammation; the ureter was distended with urine and blocked half way down with inspissated clots, which had entered the pelvis through a tear extending from one calyx far into the softened renal tissue. Both supra-renal bodies were decidedly atrophied, but no other signs of Addison's disease were present. As a rule, however, profuse hematuria follows injuries to the kidney, coming on at once or in a few hours, and lasting for days. It has been known not to appear until the eighth day.[36] Pain is usually the first symptom. It is most acute in the loin, but often inside the thigh toward the knee, the testicle being retracted. The lumbar region and abdomen, on the side of the affected parts, are very tender, though no bruise may be visible. Passage of clots through the ureter gives acute paroxysms of pain, with nausea and vomiting. Pain is not a constant symptom, as shown by D'Arcy Power's case,[37] in which there was absence of pain with hematuria for two days. Hemorrhage may take place into the surrounding tissues or beneath the capsule. It is, as a rule, apparent early, and is recognized by the ordinary signs and symptoms of internal hemorrhage There will be an external increasing area of dulness and swelling in the lumbar, and, it may be, in the iliac regions. Swelling and dulness in intra-renal distention is circumscribed, more slowly formed, and later. If confined to the pelvis and ureter, the tumor will rarely be appreciable, unless it burrows under an easily separable capsule. If it rupture into the peritoneal cavity, a fatal result is probable, especially if a large vessel be ruptured, for there will be no pressure to resist blood extravasation. Secondary hemorrhage may occur. Royer[38] observed hematoma six weeks after injury.

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[33] Quoted by Keen.

[34] Annals of Surgery, August, 1896.

[35] Lancet, Jan. 11, 1890.

Mortality and Treatment.[39]—Keen's tables give 118 cases of rupture of the kidney. Of this number one was under treatment when reported. Of the 117 cases, sixty-seven recovered and fifty died—a mortality of 42.7 per cent. From these cases the following seventeen deaths, in which treatment was futile or impossible, should be deducted:

The other kidney absent	1
Both kidneys injured	2
Found dead	2
Died of other injuries in addition to renal injuries	12
Total	17

Of the 100 remaining, sixty-seven recovered and thirty-three died—a mortality of 33 per cent. Early death, without nephrectomy, occurred in thirteen cases, eleven dying from shock and hemorrhage, and two from peritonitis in addition. There were ten late deaths without nephrectomy, all excepting two due to sepsis, one due to continuous, the other to secondary hemorrhage. Dr. Keen says, "had nephrectomy been done in the twenty-three cases, it is, I think, a fair presumption that ten of them would have recovered, which would reduce the mortality to 23 per cent." There were twenty-two of nephrectomy with eight deaths—a mortality of 36.4 per cent.; there were forty-two deaths in ninety-five cases without nephrectomy —a mortality of 44.2 per cent. This makes a difference of 8 per cent. in favor of nephrectomy, though the operation was only done in the most serious cases, which makes the value of this life-saving operation the more evident, when we recall that the large number of cases without operative interference, were the slighter cases of injury. It becomes evident from consideration of these facts, that operative measures would have saved many of the ninety-five unoperated cases. A study of this same table shows secondary nephrectomy to be nearly twice as fatal as primary—38.5 per cent. to 20 per cent.

Lumbar nephrectomy is the preferable operation, because it is less apt to cause infection of the peritoneal cavity. In cases pointing to intra-peritoneal hemorrhage, or to serious injury to other abdominal viscera, abdominal section should be made. Hence a very careful study of all the conditions in each case is absolutely necessary to the best success.

Fifty of the 118 cases in Keen's tables died. The causes of death were tabulated as follows:

Primary hemorrhage and shock	11
Continuous hemorrhage	1
Secondary hemorrhage	2
Injuries to other organs	12
Found dead	2
Absence of the other kidney	1
Peritonitis	5
Coma	2
Pneumonia and empyema	1
Suppuration and exhaustion	10
Anuria	1
Nephritis	1
Uncertain	1
Total	50

It is to be noted that primary hemorrhage and shock (eleven), continued hemorrhage (one), and secondary hemorrhage (two), caused fourteen deaths; and suppuration (ten), empyema (one), and peritonitis (five) caused sixteen deaths; this certainly proves that hemorrhage and sepsis are the two great causal factors of fatal kidney rupture. Since the majority of recoveries in rupture of the kidney are the less severe cases, and since the graver ones do not recover, unless by operative interference, it is clear that the duty of the physician or surgeon is to resort to exploratory incision. It adds but little risk and will save a greater proportion of lives.

Rupture of the ureters may be produced by the same or similar causes inducing injury of the kidney. Barker[40] and Godlee,[41] have reported a case each, in which nephrectomy was performed, and recovery followed.

SUBCUTANEOUS INJURY OF THE BLADDER.

A solution of continuity in the walls of the bladder may be caused, by violent concussion, or by displaced fragments of bone in fractures of the pelvis. Owing to the fact, that the organ is well protected by the pelvic bones, and is usually in a state of only partial distention, such injuries are rare.

Rupture of the bladder may follow violent concussion, especially if the organ be distended and the force be exerted on the lower abdominal region. This force may be from a kick, a blow or crushing pressure. The accident is more frequent in men than women, in whom parturition and continuous pressure by uterine or ovarian tumors, are causative factors. Some years ago, Prof. Hektoen reported a case, that is a good example of the effect of resistant pressure from tumors. A woman died after being kicked in the abdomen, and beaten by her brutal husband. The post-mortem examination showed a tear one and one-half inches long in the posterior wall of the urinary bladder, near the fundus. This tear was transverse, ragged, and free from signs of inflammation, as was also the peritoneum. In the uterus were three sub-serous fibro-myomata, which filled the pelvis and acted as a firm, resisting body, against which the bladder was pressed when injured.

We can gain some idea of the frequency of the injury from the fact that in 8,000 surgical cases in the Cook County Hospital, between 1889 and 1892, five were proven to be traumatic rupture of the blad-

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[36] Burrow: Medical Press and Circular, London, 1890, N. S. L. 572. (Keen.)

[37] Lancet, Feb. 8, 1890.

[38] Traités des maladies des Reins.

[39] W. W. Keen: The Treatment of Traumatic Lesions of the Kidney, with Tables of 155 Cases; Annals of Surgery, August, 1896.

[40] Lancet, i, 95, 1885, quoted by Keen.

[41] Trans. Clin. Soc., xx, 219, quoted by Keen.

der.[42] The St. Bartholomew Hospital reported but two cases of injury to the bladder, out of a total of 16,711 surgical cases from 1869 to 1875.[42]

Symptomatology.—The symptoms may be obscure. Two out of seven cases reported by Dr. Herrick were not diagnosed until after death. The rupture may be intra- or extra-peritoneal. Fortunately, it is usually the latter. When extra-peritoneal, the signs of infiltration into the pre-vesical connective tissue or into the vesico-rectal or vesico-uterine space, are readily recognized. External palpation or the introduction of the finger into the rectum, will reveal a peculiar doughy condition of the tissues. The hypodermic needle may withdraw a few drops of bloody urine from the tissue. In case of intraperitoneal rupture, shock is more marked, and there is dulness in the hypogastric and inguinal regions. The passage of a catheter or sound may confirm a diagnosis. Should the sound be felt beneath the abdominal wall, rupture is demonstrated. The passage of a small amount of bloody urine, with or without the catheter, is a suspicious sign. If the urine is passed more readily by aid of the abdominal muscles and pressure on the abdominal wall, evidence of a more convincing nature is added, but is not conclusive.

Eight or ten ounces of liquid will distend the bladder, so that it will rise into the abdominal region; hence, inject at least this quantity of some aseptic fluid, as sterile water, into the bladder. In case but a part of the water is returned, and the viscus does not rise, the organ is ruptured. Filtered air, or hydrogen gas may be injected, and in case of a rupture into the peritoneum, it will escape into the general peritoneal cavity; or form emphysema of the cellular tissue, in case of extraperitoneal rupture. Peritonitis does not necessarily follow intraperitoneal rupture, because urine has been demonstrated to be aseptic The case of Dr. Hektoen referred to above did not contract peritonitis, though living nine days after the rupture, and with her abdominal organs bathed in urine.

The symptoms are masked by drunkenness, pain and shock being but slight. That drunkenness is an important etiologic factor, is well known. "It furnishes the abundant secretion of urine; a paretic, and consequently distended bladder, which rises above the pelvic brim where it is exposed to injury; and a relaxed abdominal wall, so that the force strikes with unchecked vigor upon the viscus with the walls tightly stretched."[43]

Figure 6 represents a bladder with a very extensive rupture in its posterior wall, which readily allowed a passage into the peritoneal cavity. The patient passed his urine by aid of the abdominal muscles, pressing the urine through this very large rent. This caused a diagnosis against rupture by a consultant.

Peritonitis did not occur until after catheterization by some five different persons. The infection was undoubtedly due to the use of a septic catheter.

The patient in this case was drunk at the time of injury, and the symptoms were so masked that the physician originally called in thought it merely a pain in the abdomen and of no serious nature. The temperature never rose higher than 100 F., and the pulse was about 120. A gradual failure of strength took place and the patient died fifty-two hours after admission to Dr. C. W. Earle's hospital, and four days after being seen by the first physician. This case was reported by Dr. Jas. B. Herrick, who called particular attention to the fact that "when the rent is large and especially when there is no peritonitis, bloody urine may be obtained in quantity and in a stream."

We are inclined to the belief that operative interference when free from sepsis, would save all such cases or at least a large percentage.

Treatment.—In extraperitoneal rupture, immediate and free incision into the infiltrated regions, should be made. In order to find the rent in the organ, an incision should be made, as in suprapubic lithotomy. The rent should be found and carefully sewed up by Lembert's sutures. Fine silk is the best material, and should be inserted through the peritoneal and muscular coat, but not the mucous coat. It is well to test the sutures by distending the bladder before closing the abdominal incision. Intraperitoneal rupture demands a longer abdominal incision. The peritoneum must be thoroughly flushed out with aseptic water, or bichlorid solution (1-2000). In case of peritonitis, a drainage tube should be inserted. When it is recalled that intraperitoneal rupture is almost invariably fatal without operative intervention, the physician's duty is plainly indicated—operative interference is imperative.

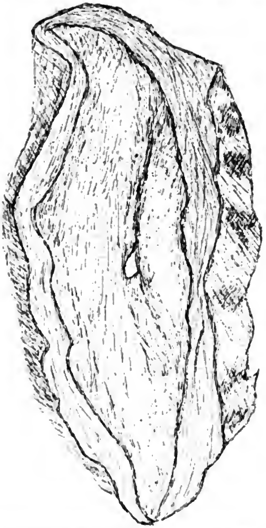

FIG. 6.—Rupture of the posterior wall of the bladder. (Original from specimen in Rush Medical College Museum).

INJURIES OF THE PENIS AND URETHRA.

It is seldom that wounds of the penis are met with. Fracture of penis has been known to occur. when the organ was in a state of extreme erection. Laceration of the organ sometimes occurs. The treatment for such injuries is the same as for other parts similarly affected.

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[42] Herrick: The Medical News, Feb. 25, 1898.

[43] Herrick: The Medical News, Feb. 25, 1898.

Rupture of the pendulous portion of the urethra is rare. While it is difficult to treat, it is not dangerous as a rule. The symptoms are what one would expect, pain, hemorrhage and swelling. Evaporating lotions, rest and very gentle catheterization is all that will usually be required for satisfactory results. Rupture of the urethra may be due to instrumental violence. Most cases reported have been caused by falling astride of resistant bodies. The writer had occasion some years ago, to assist in caring for a young man who had fallen astride a timber, literally crushing the bulbous portion of his urethra. In these injuries, the pubic bones and the vulnerating bodies furnish the two hard, unyielding factors, between which the soft urethra is contused, lacerated or crushed. There have been a number of explanations for the mechanism of urethral rupture, but the one just mentioned is sufficient for all practical purposes.

Treatment.—In mild cases, periodic use of the soft catheter, well greased with carbolized oil, may be sufficient, provided the patient is kept at rest. Fever and local swelling call for decided steps. Should extravasation be marked, and it be possible to pass a full-sized catheter, the instrument should be allowed to remain. The tissues involved in the extravasation should be laid open. It may be impossible in some cases to find the proximal end of the torn urethra, even after perineal section. Such was the condition in the case mentioned above; suprapubic cystotomy was performed, and retrograde catheterization soon located the proximal end. An elastic catheter was allowed to remain and the perineal wound was sutured. In the course of three or four weeks, the patient was discharged, after having been instructed in the art of passing the sound on himself, to avoid the cicatricial tissues closing the urethra by contraction. Where possible, it seems wisest to suture the divided ends of the urethra with catgut. Do not include the mucous membrane in the sutures.

[Note—Owing to limited time it has been impossible to treat this subject as fully as the writer desired. For this reason he did not deem it advisable to undertake the discussion of subcutaneous injuries to the brain. Only traumatic injuries of subcutaneous soft parts have been considered in this essay. The writer wishes to acknowledge his indebtedness to the various sources from which the information in the foregoing pages has been obtained. It has been his intention to mention by proper references, the authorities to whom credit is due. He is especially grateful to Prof. L. Hektoen for the use of his postmortem records, from which much very valuable information was acquired; also for the use of specimens from the Rush Medical College Museum, which enables the presentation of four original illustrations in this production.]

SURGERY ONE HUNDRED YEARS AGO.

AN HISTORICAL STUDY

BY DR. GEORGE FISCHER.

DEDICATED TO THE GERMAN SURGICAL ASSOCIATION.

TRANSLATED FOR THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION
BY CARL H. VON KLEIN, A.M., M.D.

(*Continued from p. 92.*)

XX.—GUNSHOT WOUNDS, AMPUTATION, EXARTICULATION, RESECTION.

Gunshot wounds in general; Gunshot fractures; Conservative surgery; Gunshot wounds of the joints; Injuries by cannon balls; Primary or secondary amputation; Method of amputation; Exarticulation; Resections.

The twentieth chapter of our historical work! Has not the patience of the reader been already exhausted? Has not my work been already laid aside, with a "never more"? I would give something to know as to this. Yet to every colleague who has remained true to me until now I will extend a grateful hand and seek to refresh his severely tried patience, at the close, by a theme of more general interest, *gunshot wounds.*

To what teachings did they pay allegiance, in the year 1750, in case of a simple gunshot wound? Even then had begun, as previously mentioned, an opposition to the excessive probing of gunshot wounds. They distinguished a primitive and consecutive hemorrhage, which, if the scab dropped off, appeared more frequently at night than during the day. The bullets (of lead, iron and copper) were extracted as soon as they could be distinctly felt; a number of instruments were invented for that purpose, and the patient was placed in the same position as that in which he had received the wound. This principle originated with A. Paré. It was the general rule to enlarge the openings of every gunshot wound as soon as possible. Formerly this was done more frequently in a bloodless way, by means of absorbent lint and dilation, later with the knife. They also began to stuff up the path of the bullet with lint and to close it with the seton. The bandage materials were mostly irritating in order to accomplish a quick shedding of the scab and an abundant granulation.

It was characteristic of the advancement in the teachings on gunshot wounds, that it took place in a purely empiric way. There was no mention of principles based upon a physiologic foundation. How the healing process in the path of the bullet took place, no one knew; how the size of the wound was proportionate to the velocity of the bullet, no one considered. These and similar questions were first raised by John Hunter. He accordingly looked upon the accomplishments of the French military surgeons with insignificance, and said that "among the French the art of destruction is very highly perfected, while that of healing has not reached a like perfection. . . There has been little written on gunshot wounds and what has been written is so superficial that it deserves no special attention. Simple practice without principles appears to have been the guide of those who have occupied themselves with this branch of surgery. And if one fixes his eyes upon the practice hitherto followed, he finds it extremely limited and almost reduced to the ordinary rules of surgery." Hennen later sought to detract from these complaints when he extolled to the highest point the French surgeons before Hunter's time. We will submit a few of Hunter's theoretic doctrines on detailed questions. He distinguished gunshot wounds from other wounds, especially when fresh; then they demanded a particular kind of treatment. This classification depended chiefly upon the velocity of the bullet. If this was slight it occasioned only a small injury, seldom a fracture. If the velocity of the bullet was sufficient to fracture the bones the shattering was much more extensive than in the case of greater velocity; in the latter case the bullet carried away a piece of the bone almost as if by pincers. So gunshot wounds sometimes simulated a knife wound. The denser the bullet the less matter was rubbed off from it, and this was more abundant at the entering point than at the exit (Le Dran had taught the distinction between the two). The reddening of the skin in the canal of a superficial shot wound was, according to Hunter, by no means of an inflammatory nature. He said it was like the rosiness of the cheeks; that the small blood-vessels allowed the red part of the blood to flow through more readily than usual. Healing could only take place by way of suppuration, although when there was very little contusion at the point of exit a prima intentio was possible. As a rule, Hunter observed the beginning of the healing at the point of exit, sometimes the contrary; it appeared to him to be the rule that the lower end of the bullet canal healed more quickly than the other.

In general they believed in the existence of the so-called air grazing shots, and attributed the most dangerous injuries from the simple grazing of the bullet to the pressure of the air. Tissot estimated the force of this and Plenk ascribed it to the electricity generated in the bullet by the explosion. The first who contradicted the air grazing shot was le Vacher of Bisançon (1768); he traced the injuries to an actual contact of the bullet with the body and declared them to be simple grazing shots. Richter agreed with him.

The after-ills in severe shot wounds were in general known; the pyemic fevers can be easily studied from the writings of Bilguer and Larrey. It is striking that Hunter, who was acquainted with phlebitis and expressed the supposition that its fatal results depended on the entrance of the pus into the circulation, said nothing of pyemia.

Among the practical questions, the *enlargement of the path of the shot* was earnestly discussed by surgeons. They adduced as advantages that it facilitated the extraction of foreign bodies, created a better outflow for the extravasation, transformed crooked wounds into straight ones, etc. The incision should be made immediately in order to promote the expansion, and should extend throughout the whole path of the bullet to the bottom of the wound, and in fractures should reach the bones and indeed extend over the whole length of these. Being earnestly recommended by A. Paré and Wiseman, they found acceptance everywhere and in France, as well as in Germany, were sadly abused. They were, indeed, legally prescribed in the Austrian regulations for field-surgeons (1788). Even at the end of the century they were recommended by J. Bell, and especially by Percy, who sought the first indications of healing in the transformation, so far as possible, of shot wounds into knife wounds. One of the first who opposed this nuisance was Ravaton. He allowed enlargement only in order to promote the discharge of pus, but never if there was danger of cutting through large blood-vessels and nerves. That he considered it necessary to describe the incision on every separate part of the body shows the low grade of anatomic culture among his countrymen. Theden had, after increased experience, abandoned the common use of the incision. J. Hunter especially deserves credit for having confined the incisions to narrower limits. Yet it must be recognized that Jackson of Dublin had, a few years before him, energetically opposed the principle of enlargement (*London Med. Jour.*, xi, 1790). He observed that it increased inflammation, delayed the healing, and caused danger of joint affections in consequence of the admission of air. Desault and the other surgeons in the Hôtel Dieu (1792) had long before desisted from cutting into gunshot wounds when Hunter had entirely discarded the method as an ordinary practice (1794). It contradicted the precept which held good in all other wounds, that as such they should not be enlarged. The practice in gunshot wounds should be also that of civil surgery. Without promoting the expansion the incisions increased the inflammation, readily closed again, and delayed the healing. Hunter considered dilation as required only under certain definite indications: 1. If foreign bodies irritated or pressed against an important part. 2. If a ligature was demanded for stopping hemorrhage. 3. If in a head wound a fracture was presumable. 4 and 5. If bone splinters and foreign bodies could be immediately extracted with advantage and their retention would have evil consequences. 6. If viscera protruded from the wound (bowel). 7. If important organs are compressed, as the lungs in case of rib fractures. On the other hand, Hunter limited the indications too narrowly; for when the bullet lay at some distance from the sound membrane and could be felt, then one should wait until the entering point had become inflamed. As a reason for this principle he alleged that the wound could readily heal with the bullet inside, that the inflammation occurred, therefore, not from the injury, but from the contact of the part with the external air and hence the admission of air must be prevented. In respect to the extraction of the bullet, he counted too much upon the help of nature and argued that the direction of the bullet was quite uncertain, for the heavier it was the easier would it curve and run obliquely when resisted. B. Bell and Boy also condemned the abuse of dilation. The latter criticized the extraction of a foreign body when the operation had more unfavorable results than the presence of the bullet. If it was necessary, the earlier it was done the better.

The number of *instruments for the extraction of bullets* had become very large; Ravaton alone had invented three. The apparatus grew simpler with time. Hunter came to think the usual ball extractor almost inapplicable. Many would banish all the hooks, screws, bores and ball extractors, and extract the bullet with the finger, or if that failed with a pair of small pincers (Richter). Finally they used almost entirely small bullet-tweezers, spoons and bores (Percy). The movement of balls healed in the bones was known; Ravaton observed a bullet situated in the antr. Highm. for twenty-five years, after which time it came out through the palate. Le Dran noticed one a year in the sella turcica, Pallas one for fifteen years in the os ethmoidale.

The *bandage material* also gradually became simpler, both in respect to number and to composition. The one bound fresh gunshot wounds with irritants (alcohol, wine and salt-water) in order to restore the weakened vital force of the vessels and to hasten the separation of dead from living matter. Another applied emollient, sedative remedies (tepid water and digestive salves), which were said to support the free discharge of secretions but to allay swelling and inflammation. As a rule the whole wound was filled loosely with lint that it might absorb the pus and protect the muscles from sharp splinters of bone. Dry lint was used by Ravaton, and over it a diachylon plaster and a large compress wet with alcohol. On the third day he had the bandage removed, the channel of the shot syringed with oil, ungt. basilicum laid in the wound and over that a pledget with the same salve, and a compress dipped in vulnerary water applied. The bandage must not exert the slightest pressure, and was removed twice a day. Theden's arquebusade-water made something of a sensation: "Take sorrel water and alcohol, one and one-half pounds of each, half a pound of white sugar and five ounces of spirits of vitriol; mix these and digest the mixture for eight days, then filter it." Theden preferred this arquebusade to all other remedies, not only for gunshot wounds but also for contusions, burns and swelling in fractures, luxations, etc. Surgeons were not united as to the use of warm and cold applications. Theden changed his opinions in so far that he had at first regarded warm poultices as entirely necessary, but in later years often found warmth injurious and observed the best results from cold applications. Jackson's experience was similar. On the contrary Hunter considered the cataplasma the best bandage for gunshot wounds and most lacerated wounds. B. Bell took the middle course, in that he used poultices only in the beginning but removed them as soon as suppuration ensued, because they relaxed the wound and increased suppuration unnecessarily. The Frenchman Boy, who a year later than Hunter, and entirely in the spirit of this great surgeon, wrote an excellent work without mentioning him, recommended common water, at first tepid but gradually cooler. "All salves and the damnable irritants are of no avail. . . . Let us simplify whatever can be simplified." He protested against the general use of poultices, and used them only to induce suppuration. Until the appearance of suppuration he rarely bandaged, and then kept the bandage wet. The injured limb was laid so that the muscles were relaxed as much as possible, and a bandage adjusted from the under part of the limb across the wound and above it in order to diminish the involuntary muscular movement and the pain; he laid the greatest stress in general upon the methodic adjustment of the bandage. He decried the drawing of a seton through fresh gunshot wounds (Bell), and availed himself of this instrument only in case the pus could not flow freely. Boy sought to restore to its rightful position the use of the syringe, against which a prejudice prevailed, but he cautioned against too strong injections on account of the possible laceration of the cellular tissue. After Mursinna had called attention (1796) to the fact that in many injuries the simplest treatment is the best, that gunshot wounds with injuries of the bones healed more easily and quickly if they were not cut or stopped up, but were only covered with a common wound salve, a great simplification in the treatment of wounds and the technique of bandaging began in the first part of our century with V. von Kern of Vienna (1810). With the exception of lukewarm water, which he recommended as the only covering for a suppurating wound, he considered that there is "no other salve nor balsam to further healing but the balsam which nature herself offers and which no apothecary can give us; the wound itself provides it. Accordingly everything which is used externally with this object is thoroughly injurious." With inspiration Kern said in a pamphlet to the surgeons in the Napoleonic wars, "let us also lay aside all salves and balsams; let us once forget the cinchona decoctions and all other expensive external remedies which have been hitherto employed. Let us give up the use of lint and all the bandages prepared from it, namely, the setons, pledgets and the like; they are foreign bodies, they can only irritate. Let us abolish the bad custom of filling wounds with lint; for it hinders the complete discharge of matter produced by the pus and induces putrefaction of the wound. Let us desist from the use of artificial bandages; it is only expensive, for it wastes so much linen which might be turned to other uses! Let us avoid all those liquid balsams which are injected into the channels of gunshot wounds; let us discontinue the rigid pressure with the hand along the course of these channels in order to force matter out through them. It only irritates the injured part and maintains a continual condition of inflammation! . . . . Follow my example. By the use of these principles you will save the soldiers endless pain and millions to the State."

In the general treatment *blood-letting* stood foremost. At first wantonly abused, they later began to limit it. It was always evident that the soldiers, exhausted by poor food and fatigue, bore repeated bleeding badly (Lombard), and that the strength must be preserved for the excessive suppuration. Therefore Hunter permitted only a moderate letting of blood, and Boy discarded it altogether as a general remedy. More and more the debilitating treatment was replaced by an invigorating one. Peruvian bark came into use, especially in England, in inflammations following injuries and operations (Hunter), and also in suppuration and gangrene.

They sought to arrest *hemorrhages* (see Chap. 14) from gunshot wounds when only a branch of an artery was injured, by direct ligature, or if that failed, by styptics and compression. But if a large artery bled they amputated (Ravaton). Bilguer had already conceived the idea of binding the main stem of the femoralis and the axillaris, in the hope that the small side branches would enlarge; even in case of shattered bones with arterial hemorrhage he advised ligature or compression and opposed amputation. Then Theden sought to displace the ligature with the tampon. Boy declared compression entirely unreliable, always used a stricture and only in the rarest cases considered the application of a ligature necessary. Since Larrey the laceration of the main artery was no longer regarded as an indication for amputation.

In case of *gunshot fractures* they amputated with a readiness scarcely to be believed, until in the middle of the century. In order to explain this we must anticipate the history of amputation. In Heister's time the rule was to amputate every limb with a shattered bone or an injured joint; the possibility of preserving it was considered as exceptional. J. L. Petit had advanced this doctrine. The causes of this mania for amputation reach far backward. In the fifteenth and the first of the sixteenth centuries the operation was always unusual but crude. The better surgeons sought with great patience to heal the most dangerous injuries and regarded amputation as the last resort (F. Würtz and Paré). Then came the age of Louis XIV. with its crowds of ignorant barbers. But the war developed a few skilled surgeons who, through large and bold undertakings, quickly became celebrated. But instead of improving the miserable methods in the treatment of gunshot fractures, they went over to the operation. Ever since Paré had applied the ligature after amputations and Morel had invented the tourniquet, the great fear of hemorrhage had vanished; surgeons had become more courageous. It was thought that the rarity of operations was to blame for many deaths, while the enormous mortality in the hospitals was due only to the bad treatment of the fractures. The men who fell into this error set the fashion for all Europe; in a short time amputation became the most common operation. For example, Schmucker saw, in the year 1738, in the Hôtel Dieu in Paris, a double amputation of both thighs made on account of a simple fracture. The French surgeons in the Prussian army, who came from this school, cut off arms and legs without discrimination. A reaction began. Le Dran, indeed, and Bagieu were already convinced that amputations were conducted without due consideration; but the Frenchman Boucher first opposed the abuse in gunshot fractures, especially. He showed (Mém. de l' acad. de chir. ii, p. 304) that two-thirds of those so operated upon almost always died, while of 165 fractures which were treated without amputation not one resulted fatally. When the Académie de chirurgie (1754) offered a prize question on the necessity of amputations and the time for them, Faure won the prize with the answer that one should amputate in gunshot fractures in the second period.

During these discussions Bilguer appeared (1761). He boldly resisted the generally prevailing views and threw the gauntlet to all surgeons. He made it a rule to treat all gunshot fractures and joint injuries conservatively and to regard amputation as an exception. *Our conservative surgery began with Bilguer.* He protested against most of the indications for amputation and admitted only such a laceration of a main artery that the nourishment of the limb seemed impossible and extensive inflammation. Bilguer treated gunshot fractures in the following way: The wound was boldly enlarged by an incision which reached the bone and extended the length of the muscle. Loose splinters and foreign bodies were imdiately extracted, firmly fastened fragments were brought to their proper position with the finger and left to nature, which sometimes healed them. Sharp, protruding ends were sawed off with a small saw, "for which one must have various thin, narrow, curved and straight blades." "In this way we have, with the greatest success, sawed pieces of bone three or four inches and more, from the bones of the lower leg, forearm and upper arm." Bones of the head and foot should be obstructed, be separated and taken out. A bullet fastened in the cavity of a bone was removed with the trepan. The wound was filled with lint from both openings of the channel, pledgets, compresses and a circular bandage laid around it and these were wet, for three or four days, with spiritus vini. Later he recommended digestive salve and emollients. The limb was lain in extension between board, pastebord or straw splints. Bilguer openly admitted that this conservative method caused the patient much pain and the surgeon much trouble and that it would bring about a cure only in the hands of skilled and experienced surgeons. If one asks for the results which he reported, the following figures give the answer: During the Seven Years' War he attended 6,618 wounded in his hospital, from its establishment to its suspension. Of these, 5,557 men were again fit for active service, 195 were half invalids, *i. e.*, fit for the garrison and civil service, 213 complete invalids, among whom not a single amputation had been made, and 653 died. Those 408 invalids all had "severe fractures, that is, shattered and bruised injuries to the bones . . . for at least everyone among us knows very well that none of our soldiers could become invalids on account of head and flesh wounds." He added that "it might be said that perhaps among those who died from their shattered limbs, some might have been saved if their limbs had been amputated at the right time and in the proper manner," but I also for my part can assert, that of the very many who during the first years of this war lost the limbs on account of severe wounds scarcely one or two have survived." And amputation in the field seemed to him very rarely indicated because it was impossible to perform it on the battle-field and a secondary amputation should be forbidden for many reasons. "Throughout the whole Seven Years' War I have had no one under my supervision lose a limb by amputation, and I can bring forward 1,800 cases in which I have saved the wounded from this most horrible operation." Caries, which might develop after gunshot fractures, did not appear to him an indication for amputation. "For caries we have found it necessary to do nothing more than expose the bones more or less according to the nature of the difficulty, then to scrape them with a knife or perforate them with a small bore or a sharp brad, or, if the caries extended to the other surface of the bone, to bore with a tampon in more than one place, or even, as in case of the hands and feet, to remove whole carious bones, or in large bones entire carious parts, with the help of this or that instrument and of the hand." In order to confirm his conservative principles by facts Bilguer mentions, in his work on amputations (1761), fifty-one cases of serious injuries to the bones, which had been treated in the field hospital at Torgau with the best success, by him and by other surgeons of the army. After the close of the war, in his surgical observations (1763), he was able to add 118 likewise conservatively treated cases "of shattered limbs and joint injuries" He discussed only severe injuries (extensive destruction of the diaphysis or the joints of hollow bones, which frequently were occasioned by canister shot or cannon balls). Among these 169 cases, 9 fractures of the thigh were healed, 42 of the lower leg, 19 of the ankle, 11 of the foot, one of the shoulder joint, 9 of the head of the humerus (among them one in which the humerus was exarticulated almost entirely from the shoulder joint by a blow), 16 of the diaphysis of the upper arm, 22 of the elbow joint, 9 of the forearm, 3 of the wrist, 8 of the hand (among them 5 in which the hand was shot or cut half off), and 6 fractures of various bones of the extremities.

Bilguer's service was extraordinarily great for that time of mania for amputation. But his mistake was in the extravagance that would displace amputation almost altogether. Although a hundred years have passed we have not the right to cast a stone at him on that account. Though conservative surgery has made so great progress since the time when, sometimes practiced with foolhardiness, it cost so many lives, we are not yet through. It is to Bilguer's discredit that he published cures almost entirely and no fatalities, and that he noticed many observations of entirely unknown surgeons, upon which one could not rely. Certain of his contemporaries might assert that no surgeon merited so much from the human race as he, and shortly afterward Ravaton also might have come forward with conservative cures of complicated gunshot fractures (l. c. 2. Ausgabe 1768; this is lacking in the first edition); they raged against Bilguer from all sides. Among Frenchmen, Martinière charged against him that the many incisions caused more pain than amputation, which led to a quicker and more certain healing, and finally that a stiff and useless leg was the price of that useless treatment extending over months. And Morand thought this treatment "so cruel that one is dismayed even to read of it," and the number of external remedies so great that one is reminded of the charlatan, and that Bilguer's prescription's were faulty and too expensive. For example, a warm poultice applied in case of gangrene, cost 2 livres 10 sous. "Much is German balderdash . ., much is written obscurely without intelligence and without tact . . ., is madness a proper term to use of French surgeons who have the greatest reputation of any in the world?" An opposition was also raised in England. According to Charles White and Pott there were always some cases in which amputation was unavoidable, and Pott regarded the vaunting of remedies by which amputation was rendered unnecessary as quackery. In case of shattered bones he amputated immediately before inflammation had set in; for if this had already arisen, or if the air had already penetrated with injurious effect, then the operation only hastened death. The question as to whether more men with complicated fractures died without amputation than after the operation, according to his opinion, a single surgeon could never answer; but according to all experience the danger to life is greater if one seeks to save the limb. The objections of Pott and Morand, with whom Van Gesscher allied himself in an exhaustive criticism, were intellectual and were written with great insight, insomuch that they contributed much to support the doctrines of the German surgeons in their development. The attacks upon Bilguer from abroad had no end until he found a warm friend in the Englishman, Kirkland. The latter loudly proclaimed the principle that far more skill and art were required to save a limb than to cut it off, for there doubtless are cases when operation is unavoidable. "One must obviously seek to save the limb when there is even a slight probability that it can be saved;" however, the only consideration should not be as to whether there is less danger with amputation than without it. What man would gladly incur some danger in order to save a limb, . . . it is incredible what nature can do." Kirkland did not consider amputation absolutely indicated either in fractures of the joints, wounds of the large blood vessels or in caries. With certain limitations B. Bell agreed with Bilguer and would not amputate in case of fractures with slight injury to the soft parts, but would operate immediately in severe breaks with splinters, especially if they pressed into the joint. In doubtful cases he advised conservative treatment, since if that failed there was always time for an operation, and the secondary often gave better results than the primary. Frequently external conditions decided it. For example, Bell made it a rule to amputate after battles all complicated gunshot fractures immediately. To be sure a few limbs were lost in that way, but certainly far more human lives were saved, which without amputation would have been lost. If we look about us at Bilguer's countrymen we observe Schmucker take the golden middle course. He charged against some French surgeons that they often amputated unnecessarily; but there were always cases when amputation could not be avoided without exposing the patient to mortal danger. "It is just as extravagant to wish to abolish amputations altogether as to cut off all limbs without distinction. . . . Whether it is a blessing to live after amputation is a matter concerning which the surgeon does not have to discriminate; his duty is to preserve life as long as possible." Richter, who advised immediate amputation in case of severe splintering of the joints and laceration of the larger blood vessels and nerves, considered it impossible to give any general rule for the rest, since each individual case must be specially judged.

It was sought to cure gunshot fractures of the diaphysis of the *upper arm* in metal splints with the elbow joint bent, while fractures of the caput humeri and of the lower condyles for the most part demanded amputation (Ravaton). Attempts were made to cure considerable injuries by the conservative course. Once a humerus was shattered two inches below the shoulder joint, and the bones, muscles and cuticle so lacerated that the forearm hung from the upper arm by only a mass of muscles an inch and a half thick, which, by good fortune contained the large vessels and nerves. A cure was accomplished after three months with two splints (Seeliger). Gunshot fractures of the *forearm* had a better prognosis than that of the upper arm; there was no longer any talk of amputation.

The great danger in gunshot fractures of the *thigh* was sufficiently recognized. Ravaton indeed observed imperfect cures, but death always ensued if the bone was broken in its entire thickness. Then in spite of great care no remedy availed; neither incision, extraction of the splinters, nor the most careful bandaging in a metal case with apertures, in an elevated position. Ravaton therefore advised amputation and suggested a method of exarticulation. On the contrary he cured fractures of the trochanter after extraction of the ball if it was lodged in one of the condyles. Isolated cures of gunshot fractures of the diaphysis were indeed known to J. L. Petit who, however, preferred amputation for the sake of safety, also to Bilguer and Desault and to J. Hunter who saw such a one proceed successfully, as a simple fracture. Nevertheless, amputation was in general agreed upon. Schmucker regarded fractures close above the knee as less dangerous on account of the few musculatures, and considered an operation not urgently indicated, but amputated immediately in case the bone was broken in the middle or higher up. Boy's opinion was clear and decided. Convinced of the extraordinarily difficult treatment of all fractures of the thigh whose fragments it was almost impossible to fix, impressed by the especially great danger in splintered fractures, particularly in the upper third of the bone, he said: "Amputation is necessary in most femur fractures; otherwise the patient dies of exhaustion after three or four or even six months. Many surgeons could not decide upon amputation, because they saw so many of those operated on die, and because if one did not amputate the patient lived a while and thus the good reputation of the surgeon was better guarded. What egoism! One should first do his duty and take the subject of good reputation into consideration afterward. Why allow a man to suffer for six months if he must die in the end? The surgeon must know how to decide; too much fear is often more injurious than rashness. Certainly one should not abuse operations, but he is culpable if he does not operate when the conditions demand it. If one would listen to certain writers there are almost no conditions which allow amputation; they consider it a painful remedy to be entirely banished by friends of humanity. Yet how easy it is to operate and to write. But, unfortunately, a battle-field and a hospital have nothing in common with the ideas which an author in his study forms of them. Even out of love to humanity one must have recourse to great operations, and it is a very deceitful remedy which only too often allows people to die who might yet serve the fatherland and their families for a long time." For treatment of gunshot fractures of the lower leg metal boots with suspension were used (Ravaton), Petit's cradle (Bilguer) and pasteboard and splints (Schmucker).

A similar change from operative to conservative treatment in *gunshot wounds of the joints* was initiated. They had always operated until Bilguer and Ravaton taught to avoid the operation, and the latter in particular insisted upon the curability of those injuries in which the ball had only made an aperture without breaking the bone. The former said: "When a ball has passed entirely through the elbow or knee joint and thereby injured and shattered more than one bone we find no method of treatment safer than that by which we enlarge the wound sufficiently to loosen the pieces of bone properly in the most extreme cases and especially in the knee-joint, not even sparing the ligaments, but proceeding in respect to the further bandaging, as has already been suggested for shattered fractures of the bones." In spite of all, Boy would not admit that he had been mistaken and advised amputation in general for gunshot wounds of the joints with shattering of the bones, especially in case of the large joints. "Experience brings discredit upon all contradiction, the seeming improvement only deceives." If amputation were not allowed then the ligaments could be boldly severed, for why spare them? There was no danger in cutting through them; if the wound healed ankylosis resulted so that the ligaments of the joints were of no use.

In case of shot through the *shoulder-joint*, at first every hope for the preservation of the limb was abandoned (J. L. Petit, le Dran, Heister and Z. Platner), because the head of the joint was always thought to be fractured and the shock was said to be imparted to the entire bone. But E. Platner thought this concussion transmitted from the head of the joint not readily possible, "since in youth the head is separated from the shaft by a visible line of demarkation, and there is no fixed and immediate communication between the two. For although in maturity the two seem to be completely grown together, yet the lines of demarkation so apparent at an earlier age have not flowed together to such an extent that the head and shaft could be said to enter into a complete, unbroken union. Experience also teaches that the shaft is not necessarily splintered when the head is shattered." That was the same idea as Stromeyer's in regard to splintering above the edge of the epiphysis. Bilguer, Ravaton and Schmucker reported cures by the conservative method; in that way large incisions were not necessary as soon as one felt certain of suppuration in the joint. Gunshot injuries to the *elbow-joint* were regarded as more dangerous than those of the shoulder-joint, on account of the number of ligaments and nerves and of the many bony projections, insomuch that amputation was looked upon as the rule. But in this case too conservative cures were more often reported (certainly by Paré). Ravaton thought that only those injuries offered a prospect of cure, which did not affect the entire joint, but nevertheless he would only amputate when gangrene and exhaustion threatened. Shots through the *wrist* were also cured but a stiff joint remained.

In *gunshot wounds of the knee-joint* with a simple capsular injury it was thought that amputation could be avoided (Ravaton); in those with shattered bones, lacerated ligaments or injury to the poplitea the rule prevailed to amputate immediately, the earlier the more successful (Schmucker and Boy).

The following, among others, were experiments in conservative treatment:

Ravaton (Obs. 90). The ball opened the capsule near the patella without injuring the bone. After three months, caries of the patella, amputation, death.

J. Hunter (Ausgabe von Palmer-Langenbeck, S. 890). The ball entered at the outer edge of the patella, went behind this through the joint and passed out through the cond. int. fem. Four days without treatment then superficial bandaging; cure.

Theden (Neue Bemerk. I Th. 11 Absch.). Shot through both condyles of the femur; extraction of many splinters. In the ninth week a fragment with a distinctly perceptible point penetrated into the knee-joint, and it was held down by graduated compresses and a specially constructed press. Without inflammation, suppuration or exfoliation ensuing, healing followed with a somewhat stiff joint.

Ehrlich (Chir. Beob. II Theil, S. 115). The ball entered at the condyl. ext. fem., passed through the knee-joint and out through the condyl. int. tibiæ. French surgeons urgently recommended amputation on the battle-field. The patient consented; but as the knife was so dull that it was more like a saw, he rebelled. Allowed to lie helpless, on the following day he was brought into the hospital. The patient with a four-inch circular incision which reached to the muscles, now very earnestly desired amputation. However Ehrlich could not decide upon that because he had already successfully cured several similar gunshot wounds of the joints; bandaged with plaster. After six weeks the swelling, suppuration and synovial discharge had diminished considerably and in eleven weeks the wound was healed. The patient was discharged with a stiff joint in three months.

Boy (l. c.). The ball injured the knee-joint, the outer edge of the patella and the condyle of the tibia. For several days the patient was so well that Boy did not think of amputation at all. Then swelling, excessive suppuration in the muscles of the thigh and caries. Repeated incisions, injections and careful diet brought about a cure in five and one-half months.

Boy regarded as an exception his conservatively cured case of gunshot injury to the knee-joint, and considered amputation as the rule. He did not know that during the campaign gunshot wounds in the knee were survived without amputation, but he had observed many die when the operation had not been performed. Of course the amputation of the thigh was a dangerous operation, but patients endured it rather than that injury. "It can well be that a few amputations were made when the patient would have recovered without one, but many will be saved by amputations who would die without them. . . What is very important in gunshot injuries to the knee, the amputation must not be postponed because it may soon become impossible to perform it successfully. The excessive suppuration which often extends even to the anus produces caries of the hip-joint and exposes the patient to the greatest danger."

If a *cannon ball had torn off one of the extremities* the stump was amputated in order to make a simple and clean wound and to prevent inflammation (Martinière). But similar injuries soon led to other principles. When an arm and shoulder-blade were torn off by a mill-wheel there followed no hemorrhage; a ligature was unnecessary and healing ensued (Cheselden). Ravaton saw an upper arm taken off close to the shoulder by a cannon ball; he bound up the artery, left the head of the humerus in place and thus avoided exarticulation; a cure resulted after seven months. Michaelis and Hunczovsky published two quite similar cases with ligature of the brachialis, the omission of amputation and ultimate healing. There were then submitted cures with and without amputation; one must take his choice. Bilguer was throughout opposed to a new amputation of the foot, lower leg, hand and forearm; he separated the ruptured soft parts still remaining, sawed off protruding ends of bones and removed all loose splinters. At the upper arm he made a ligature of the main vessels and in this way cured several cases; but in case of thighs shot off he saw, as a rule, death result so quickly from loss of blood that there was no longer any question of assistance. Schmucker also discarded amputation, and even considered it superfluous to saw off the ends of the bones, and he never observed severe hemorrhage follow because the arteries contracted quickly. When he found both upper arms taken off, the brachialis in only one needed to be bound; and even in case of the thigh the ligature of the femoralis was unnecessary. B. Bell and Larrey favored amputation, and also Richter, who however seemed to vacillate.

Whether one should amputate on the battle-field or later was a much discussed question. The older surgeons, Wiseman, Sharp and le Dran, had favored primary amputation. Faure in his prize work, declared this very dangerous on account of the increased sensibility and the anxiety of the patient, and would amputate only after three weeks or more, when the patients had recovered themselves. Boucher immediately opposed this view with some successful amputations made upon the battle-field (1756). Likewise thought B. Bell, Schmucker and the Siebolds, father and son, who would amputate immediately and even before transportation. These German surgeons frequently observed amputation of the thigh which were made on the first day heal, while if some days passed, and the wounded had been transported and inflammation, swelling and fever had arisen, the outcome was often fatal. Entirely opposed to this was the opinion of J. Hunter who, somewhat faint-hearted in his operative counsel, considered amputation upon the battle-field as the greatest mistake.

If hemorrhage did not indicate it at once he was willing always to postpone it until the inflammation was over, since the loss of a large limb, in perfect health and strength, was seldom endured. And if one should, with right, allege for the primary amputation that transportation is made more easily possible, yet experience opposes to this advantage that it costs more human lives than the secondary operation. These principles found a bitter opponent in Boy. He amputated as soon as the first shock was over, supported by the experience that in the field hospitals of the first class the operations always had the best results. Out of fifty-six amputations on the battle-field and upon soldiers treated in the hospital of Landau, fifty recovered. "If also many died whose limbs had been amputated on the battle-field, yet this does not throw aside the general experience. . . . Naturally, all those with fresh amputations did not recover. There are patients who will die whatever we may do; again there are others who will come through successfully, however unwisely one may proceed. Any unnecessary postponement of amputation increases the danger. If inflammatory conditions once appear, the patient is killed by increased irritation; if suppuration is present he readily dies of exhaustion. If one must postpone the operation, he should watch the periods of inflammation and amputate at the time of the suppurative period." It is seen also that our intermediary period was also known in the last century and amputation was foregone during that time. Among the French military physicians, primary amputation now soon received general recognition, although one finds the name of Boy nowhere cited. The chief physician of the French army, Larrey, exercised the greatest influence with his rough notes from the battles of Napoleon I. (Mém. sur les amput. des membres à la suite des coups de feu, 1797). Percy and Sabatier joined themselves to him. The latter wrote to Larrey: "Citoyen! je suis pénétré depuis longtemps de la vérité que vous y expremez, qu'il est nécessaire d'amputer sur le champ dans le plus grand nombre des cas, qui exigent cette opération." Larrey published a number of successful primary amputations and announced the following indications for it: 1, limbs carried off; 2, fractures with contusion of the soft parts; 3, laceration of the soft parts and main vessels; 4, fractures with laceration of the muscles and large nerves; 5, extensive exposures of the bone; 6, laceration of the bones, muscles and vessels without wider separation of the skin; 7, fractures of the joints of the foot and forearm, with laceration of the ligaments, and lodgment of a ball in the end or cavity of a joint, if it could not be readily extracted. Larrey considered a delay was indicated if gangrene was not yet limited, or if inflammation, fever and delirium appeared during the first twenty-four hours; then only could the secondary amputation come into question. He recommended conservative treatment in all simple fractures and in such as affected the joints.

(*To be concluded next week.*)

SOCIETY PROCEEDINGS.

Tri-State Medical Society of Alabama, Georgia and Tennessee.

Proceedings of the Ninth Annual Meeting.

(*Concluded from last week.*)

Dr. F. X. DERCUM of Philadelphia read a paper on

THE PATHOLOGY OF FUNCTIONAL DISEASES AS A GUIDE TO TREATMENT.

He described the nerve cells and related observations on cell activity in lower forms of life. These show movement of nerve cells and that activity causes the cells to shrink. Alcoholism causes serious nutritional changes in cells, especially that the fine prolongations were corroded, swollen and destroyed. There may be changes in cells, destruction of same and changes in the prolongations. Symptoms: Fatigue, irritability in keeping with pathology, loss of cell substance; may be due to poisons in blood. He related experiments with frogs. This is neurasthenia simplex, not that form found with organic diseases in pelvis, which is neurasthenia symptomatica. The indications are: 1, rest and food; 2, removal of waste products. In hysteria, hypnotism should not be applied; may substitute worse condition; in insanity, rest, food, elimination of toxic agents. Autointoxication may come from: 1, excess of normal constituents; 2, due to diseased organs; 3, poisons from without.

Dr. J. B. COWAN emphasized the importance of the poisons in tissues.

Dr. R. M. CUNNINGHAM said that the experiments related wiped out the functional diseases. The pathology of the writer explains the symptoms and indicates the treatment.

Dr. L. S. McMurtry said that nervous symptoms were often thought to be due to gross lesions. When these were removed the symptoms were not relieved. By elimination, rest and feeding, by improving the nervous system, they may improve.

Dr. G. C. Savage related cases with pigeons which were killed in different stages of exhaustion, which showed that exhaustion reduced the size of the cell. We need not dispense with functional diseases. The changes are physiologic rather than pathologic.

In closing, Dr. Dercum said that the essential in simple neurasthenia was fatigue, and might complicate symptomatic neurasthenia. To Hodge is due the credit of first making observations of cell changes.

Dr. F. B. Sloan of Cowan, Tenn., illustrated "The Application of the Plaster Jacket and Dressings" on a subject on a frame by which the patient is to be suspended in a hammock while the jacket was applied. The patient was placed in hammock, which was supported by a roller around the body and around the top of the frame, and plaster jacket over hammock.

Dr. R. M. Cunningham had a case die just after suspension in the Sayre apparatus, in which there is severe shock after extension in Pott's disease.

Dr. Sloan closed the discussion by relating three cases treated with the apparatus, which is the invention of Dr. T. W. Sloan of Seattle, Washington.

Dr. John A. Larrabee of Louisville, Ky., read a paper on

SOME POINTS IN THE TREATMENT OF TYPHOID FEVER

In which he claimed that as we are aborting other microbic diseases it is not unreasonable to attempt to abort typhoid. He thought that the products of the typhoid fever bacillus were far less injurious than the heterogenous microbes and ptomains formed in the intestinal tract by reason of improper diet and from poisonous gases, the product of putrefactive changes, all of which are in our power to prevent. Intestinal antisepsis is the *sine qua non* of treatment. Avoid narcotics lest the already cloudy typhoid cerebrum should forget to preside over the function of life; may occasionally be used with restlessness, factition and a dilated pupil, especially accompanying hemorrhages. Physical examination should be made every visit. Tympany should not be allowed to elevate above the spinous process. For this use:

℞	Ol. terebinth	dr. j
	Rochelle salts	oz. j
	Glycerin	oz. iv

M. Inject one-half in pint of water, and remainder if not relieved in two hours.

He endorsed the principle on which Dr. Woodbridge bases his treatment, intestinal antisepsis. The essence of cinnamon is more potent to destroy micro organisms than carbolic acid. For thirty years he has never been without a pill made after the formula of Dr. Fisher, an army surgeon, consisting of crude mercury with aromatic oils and terebenthinates, cubebs, copaiba, peppermint, aloes and colocynth. When purgation ensued he alternated with 5 or 10 grains "Tully's powder." The annoyance of the fifteen minute dosage advocated by Woodbridge, he thought deleterious. He advocated specific treatment, *i. e.*, all intestinal antiseptics, which are innocuous, and had used guiacol and guiaquin, especially where there is any probability of malarial complication, etc.

Hyperpyrexia is important but must be overcome by means not prejudicial to the patient. When the temperature persists at 104 degrees, use thirty drops externally to a small area of the abdomen. Never use antipyrin or acetanilid. If pulse and temperature rate are greatly disturbed, use small doses of strychnia.

It is a question whether the enforced feeding of the present day is not as deleterious as the venesection, almost to exsanguination, of former days. Complete anorexia helps to make early diagnosis. Bouillon, Axtell's capsules, buttermilk, Mellin's food with milk and plenty of sterilized water are quite sufficient to choose from, and never more than a gill at a time. He protested against the use of alcoholic stimulants. He had never seen any benefit from their use which could not have been obtained from tea or coffee. Digitalis has no place in typhoid. Strychnia is the one heart stimulant to be used. He should not wait for urgent and alarming symptoms before giving small doses. Whenever the pulse and temperature are disturbed in the relation of 10 to 1, strychnia should be used. Heat is a powerful stimulant to the heart and a hot water bag or Geyser hot appliance should be at hand for emergencies. Hemorrhage is from super-alkalinity and defibrination of the blood by the ptomains formed in the intestinal tract. In some, hemorrhagic diathesis; increased coagulability in some. This condition is favored by mineral acids and especially a diet of buttermilk, lactic acid, better safeguards against hemorrhage than hemostatics. Ergot controls bleeding only when unstriped muscular fibers can compress the vessels; in other forms of hemorrhage a therapeutic error. Antiseptic treatment is of value not from destruction of bacilli, but from prevention of formation of ptomains and poisonous gases, which are main factors in keeping up disease. Typhoid is a swallowed poison, hence the importance of pure water. Nothing equals chlorinated lime for disinfecting the dejecta. It is as criminal to deposit the non-disinfected stools in a vault or cesspool as to put Paris green in a neighbor's well.

Dr. J. W. Duncan said that the author was in accord with his views. For some years he has believed that typhoid fever could be aborted and had been using the best antiseptics obtainable. About two years ago he got Dr. Woodbridge's formula from Parke, Davis & Co., and had gotten good results in every case: had not lost a case since. He agrees that the patient should not drink well water; had not seen a case in last five years who did not drink well water. He also believes that the disease may be caused by using milk from cows that are allowed to drink impure water. He sustains patients with strychnia, careful feeding with liquids only.

Dr. G. W. Drake said that in Chattanooga there was very little typhoid since improved sanitary condition, sewers and water-supply. Would treat with baths, not as Brand, but at such a temperature as would not shock the patient. This was enjoyed by the patient. Accomplishes good not by reduction of temperature but by application of water.

Dr. J. Q. Sutton stated that he had used Woodbridge's treatment three years, but that when he began to purge he dosed less often. In Tracy City those who used cistern water did not have disease, but those who had the disease used well-water.

Dr. J. A. Witherspoon said that the poison is not in the bowels but formed in the lymphoid tissue, hence intestinal antisepsis is not rational. The disease frequently reported as typhoid was not typhoid but a hybrid fever due to intestinal fermentation.

Dr. J. B. Cowan had not seen a case of typhoid for twenty years.

Dr. James E. Reeves of Chattanooga had examined 300 cases and did not find the Eberth bacillus in one. The fever we have may be due to intestinal fermentation, and here intestinal antisepsis may be useful. Hemorrhage may be due to hypermedication.

Dr. Andrew Boyd said that Dr. Cowan had discussed this disease at every meeting for ten years and had always advocated whisky, and he wondered that he had not mentioned it. Dr. Cowan replied that he was coming to that when his time was out. He gave whisky in every case of fever.

Dr. William R. Blue of Louisville, Ky., read a paper on "The Cystoscope in the Diagnosis of Bladder and Kidney Disease," with presentation of the Leiter-Brenner cystoscope, which he preferred. He related cases in which it had been used for foreign bodies, stone, tuberculosis, etc. The cystoscope is indicated in obscure urinary troubles and to aid in catheterizing the ureters.

Dr. W. Frank Glenn said that the value of a cystoscope and endoscope could be appreciated only by those who used them. Stone can be diagnosed where not found with sound. He related a case where stone had been found postmortem which could not be found with a sound. In all obscure cases the cystoscope should be used. It is extremely difficult to catheterize the male ureter.

Dr. Blue said that many condemned the instrument from want of skill in using it. This requires plenty of patience, skill and glycerin.

Dr. J. P. Stewart read a paper entitled "A Bouquet of Remedial Agencies," which was a discourse on the moral management of patients. He related a number of cases relieved of serious nervous troubles by giving way to their whims and thus securing their confidence; dealing on the influence of the mind over the body and the influence of one mind over another.

Dr. W. Frank Glenn said that the subject of the influence of the mind over the body and over another mind was full of interest. The first duty of the physician was to get the confidence of the patient and then his suggestions would pretty surely be realized by the patient. Nineteen hundred years ago Jesus had taught this law every day, that the cure depended on the confidence of the patient. "Thy faith hath made thee whole."

Dr. G. W. Drake believed that every disease had a material basis. There are no imaginary diseases. Mind may act on the cell but has not complete power. In these cases give medicine and use suggestion.

Dr. E. B. Sangree said that the paper was especially interesting, as it dealt with a subject out of the general run. Since we are as ignorant of the ultimate constitution of matter as we are of mind it is well to be cautious in the use of the word. We know there are trophic nerves, and if nervous influence can affect cell metabolism it follows that anything that can stimulate nervous impulse can affect cell metabolism favorably. There is consequently no inherent reason why material effects can not be produced by mental action.

Dr. J. P. Stewart, in closing, mentioned a hystero-epilepsy of ten years' standing, where the convulsions were stopped in three minutes when otherwise they would last thirty six hours. He suggests no return for a week; later, for a month. Has had no convulsion for five years.

Dr. Louis Frank of Louisville, Ky., read a paper on "Hysterectomy; Is it Justifiable in Septic Diseases of the Appendages?" He believes vaginal hysterectomy a fad. The reason assigned is that the uterus after oöphorectomy is a useless organ, when the fact is that it is necessary to complete the pelvic floor. It is not more liable to gonorrhea, tuberculosis and cancer than before. He regards the operation as more dangerous than removal. There is less shock in abdominal operation without removal of uterus; position of bladder not disturbed. Total extirpation may not be necessary; less danger of tearing. Does not oppose vaginal hysterectomy for cancer but only in rare cases.

Dr. L. S. McMurtry said that a limited number might be cured by tapping. The French are experts in vaginal hysterectomy, but are not equal to the Americans and English in abdominal section. The best surgery is that which cures the patient thoroughly and completely with the least mortality and preservation of most of the organs in their integrity; can not make accurate diagnosis, especially as to bowel involvement if uterus is sacrificed before complete diagnosis. Often suppurating tubes, etc., are not removed. Convalescence is retarded by slough from clamp; not a completed operation. In abdominal section we can drain *per vaginam* or above by suction. The personal equation of the surgeon cuts an important figure, but generally the abdominal route is best. Cases can be cured both ways.

Dr. W. D. Haggard, Jr., was an American convert to the French school. He would not remove a healthy uterus. Where both tubes are infected the mucous membrane of the uterus is infected, then the uterus should be removed or it may be reinfected, necessitating subsequent operation. The reason for vaginal hysterectomy is on account of less mortality. The advantage is that we can break up adhesions and abscesses by fingers, per Douglas cul-de-sac, and determine extent of operation necessary.

Dr. R. M. Cunningham said that a thorough curetting of the uterus occasionally cured pus tubes. Removal of pus tubes per abdominal section and thorough curettage of uterus meets the indications.

Dr. B. Sherwood Dunn cited statistics showing that the mortality by the vagina was better. Since coming to America he had changed his mind. Vaginal hysterectomy had been pushed to extremes in Paris and there will be a reaction. He will operate by abdominal route in many of his cases hereafter. Vaginal hysterectomy will not be superceded in peri-uterine abscess and cancer. In bilateral pus tubes he would perform abdominal section. He had never had secondary infection in 500 cases.

Dr. G. W. Drake of Chattanooga, Tenn., read a paper on "Abnormal Metabolism," insisting on importance of proper nutrition. Disease is due to change which may not be seen even with the microscope. The animal extracts will largely supersede other remedies in future.

Dr. L. B. Graddy of Nashville, Tenn., presented a case where there had been "Infectious Disease of the Brain from Acute Suppuration of the Middle Ear." Infectious disease of the brain, from chronic suppuration of middle ear is quite common; may have pachymeningitis, leptomeningitis or abscess of brain. In this case the inflammation was from the use of the douche. The membrana tympani was punctured but abscess of mastoid resulted. Nearly the whole of the mastoid was removed, followed by abscess of the posterior part of the middle lobe. Operation was followed by recovery.

Dr. N. C. Steele emphasized the danger of using the nasal douche. Mastoid operations are successful as a rule. He insisted on the importance of opening mastoid when pain in this region was not relieved by leech and hot applications.

Dr. Frank Trester Smith called attention to the lesson of the importance of middle ear disease as a causative factor in producing brain lesions, especially abscess. As a rule abscess of the brain is caused by suppuration of the middle ear and hence it is important that the latter be cured.

Dr. C. M. Drake of Atlanta, Ga., read a paper on "Formaldehyde as a Disinfectant." He endorsed the use of this agent, which has the support of the Marine-Hospital Service. He described the lamp devised by Kinyoun, which is simple, cheap and effective. It is the most feasible and best germicide for disinfection. Trunks are to be filled with the fumes and placed in a room filled with the gas. The gas is very irritating to the eye, nose and throat.

Dr. J. A. Goggans related a case of ptomain poisoning (probably), due to eating oysters, with symptoms resembling atropin poisoning.

Dr. G. W. Drake said that urticaria was often the result of diet and medicine. He knew of cases due to eating strawberries.

Dr. Goggans said that it was not a case of urticaria, there was no itching.

Dr. Drake said the cause was similar and the treatment should be the same.

Dr. J. W. Hooper said it was difficult to decide whether it was due to poison or reflex trouble. Patient gives history of similar trouble whenever he eats cheese. He thought it one of tyrotoxicon poisoning.

Dr. J. W. Hooper of New Site, Ala., read a paper on "The Practical Application of the Microscope to Every-day Practice," relating cases where renal colic was diagnosed from appendicitis by examining the urine. The microscope should not be relied on exclusively. In an epidemic of diphtheria he found the streptococcus and gave an unfavorable prognosis. Many of the cases died.

Dr. R. M. Cunningham thought that the general practitioner should be able to count the blood corpuscles and estimate the amount of the hemoglobin. The microscope in the early diagnosis of tuberculosis is of questionable importance. The average practitioner will not give the time to recognize what he knows.

Dr. Richard Douglas of Nashville, Tenn., related a case of a woman at full term with placenta previa and contracted pelvis two and three-fourths inches, hemorrhage increasing, and asked what the members thought the proper procedure.

Dr. J. B. Cowan suggested dilatation and delivery.

Dr. G. W. Drake co-incided; could not see that anything could be gained by waiting; craniotomy if necessary.

Dr. J. W. Duncan would advise, if pelvis large enough to deliver head, immediate dilatation, version and delivery as rapidly as possible. To attempt to apply forceps above the brim of the pelvis might cause delay, which would result in the death of the mother as well as the child. If the deformity precludes the possibility of natural delivery he agreed that Cæsarean section is the thing to do at once.

Dr. J. A. Witherspoon said that it was impossible to deliver head at two and one-half or three-fourths inches, and the case should be watched and Cæsarean section performed.

Dr. C. M. Drake recommended symphysiotomy and immediate delivery.

Dr. Douglas thought the indications clear. In placenta previa deliver immediately, always. The high forceps operation is difficult and dangerous and his plan of procedure will be Cæsarean section.

The meeting was one of the most successful ones in the history of the society, scientifically and socially. The evening of the first day was spent at the Centennial Exposition and also the afternoon of the second day, when the physicians of Nashville tendered the visitors a luncheon at the Lion Roof Garden. About 200 members and their ladies were present. The X rays were exhibited at the close of the night session of the second day showing bones, foreign bodies, deformities, etc.

The following resolution was passed:

Resolved, That the recent outburst of yellow fever in the South and numerous conflicting State and municipal quarantine regulations, emphasize the great need of national quarantine laws which are uniform and protective; and

Resolved, That the Tri-State Medical Society in convention assembled urge upon members of Congress the need of laws governing quarantine in the development of cholera, fever, smallpox and plague.

The Society will meet in Birmingham, Ala., next year. The date will be selected by the Committee of Arrangements.

The following officers were elected: President, J. A. Goggans, Alexander City, Ala.; vice presidents, Andrew Boyd, Scottsboro, Ala., G. W. Drake, Nashville, Ala., and C. M. Drake, Atlanta, Ga.; secretary, Frank Trester Smith, Chattanooga, Tenn.; treasurer, Geo. R. West, Chattanooga, Tenn.; chairman Committee of Arrangements, George S. Brown, Birmingham, Ala.

Let us have a Department of Public Health!

SELECTIONS.

The Pest-Stratum of the Sites of Cities.—Dr. Robert Barnes, who as long ago as 1855 was a health official for a part of London, in *Scalpel*, treats of the dangerous properties of the superficial soil of cities, the careful future investigation of which will solve some of the mysteries of high civic mortalities. We agree with him that we do well to labor with the outstanding problems of water-supply, but as they will presently be mastered, the problems of the soil will become urgent and, as they too are solved, life-saving will begin in good earnest. Dr. Barnes says: "One of the most striking examples of the influence of soil, and soil governs water and air, is the generation of ague. Ague was at one time endemic in Shoreditch, but it has vanished. So we may reason that unhealthy sites may be made healthy by care; but it is not less true that sites, naturally the most salubrious, may by neglect become pestiferous and deadly. I showed that we were chiefly concerned with the soil to the depth of thirty feet. Proceeding from the surface we had a bed of variable thickness, commonly called 'made earth.' It is chiefly an artificial stratum. The proportions of 'virgin soil' to that of common earth had been reduced to a very insignificant amount. The great bulk was made up of refuse of every kind. . . This upper stratum so constituted had been further polluted, and its noxious qualities intensified, by innumerable perforations for cesspools, and constant saturation from defective sewers and drains, the poisonous emanations from gas-pipes, and every conceivable abomination resulting from the off-scourings of a population of 25,000. This layer of foul stuff, or pest-stratum, as it may appropriately be called, varied in thickness from one or two to sixteen feet or more. This description of the pest-stratum is a very important contribution to geology. This last stratum, the work of man, has to be cleared away. This done, geology reverts to its primeval natural purity. Another observation may be pardoned. If this pest-stratum, laden as it is with putrescent matter, could be kept dry, it would be comparatively harmless. Moisture is a necessary element for the evolution of its pestiferous properties. Hence good surface drainage is not less necessary than deep drainage. And we may see a happy illustration of this in the present condition of the city and the more perfect districts of London. The paving and other means for securing quick surface drainage not only lessen the emanation of foul air from the surface, and from the soil beneath, but they also promote the dryness of the air. The relative humidity of the air in London is often less than in the country. This is especially marked at night. There is little or no dew. The dry surface gives off no moisture for precipitation. And so we get in London the luxury of clear, dry, fresh air at night to a degree hardly known in many parts of the country. Doctors who have experience of night work have found this out. A practical lesson from this is: That windows may often be opened at night in London with benefit, when in the country, where grass is near, the practice is fraught with danger. I have had many proofs of this in country consultations. To secure this surface drainage and cleanliness to the greatest extent it is essential that the material for pavements be solid and impermeable to moisture. Flagstones and asphalt fulfil these conditions. Wood pavement, pleasant as it is in some respects, does not. It absorbs damp filth and gives off foul air and dust. The population actually living on the bosom of the Thames, whose every breath is a distillation from its water, is not especially liable to fever; not so much so, indeed, as the population whose dwellings skirt the banks. And this littoral population, it must be borne in mind, is exposed not only to the malaria arising from the banks, but also to that same class of pernicious influences attached to bad sites and badly constructed houses, which are found alone sufficient to generate fever. Few of the seamen who filled the medical deck of the *Dreadnought* contracted their illness on the river under circumstances which can be connected with the state of the waters; and of these few it will be found that the illness of most could be traced to cold, wet, exhaustion, bad food, drinking bad water, and overcrowding in the close ill-ventilated forecastles of unhealthy ships. Most erroneous assumptions still continue to guide the exertions of those who are most earnest in favor of the present scheme of what is called the dispollution of the Thames. I had studied the Gulf Stream as it flows in a distinct current across the Atlantic; I had seen the Plata propelling its stream of fresh water unmingled many miles into the ocean; I had traced the confluence of the Rhine and the Main, whose streams are colored, one red, the other green, running on side by side, two rivers in one bed, and I concluded that the great sewage stream would hold its course, a concentration of pollution. Sir John Simon, in his admirable reports, expressed conclusions in harmony with the above and with the evidence adduced in my observations on the Thames, read before the British Association at Dublin. In this memoir, based upon examinations of the Thames water, of which samples were taken weekly during a whole year, at high and low water, from alongside the *Dreadnought*, I was assisted in the chemic side by Odling, and Hassall in the microscopic side. During the construction of the easternmost main sewer I had an opportunity, I will not say of enjoying, but of experiencing a festivity under conditions which few excepting professional sewermen, can appreciate. I accompanied a committee of my Vestry and the surveyor in an official survey of the sewer. We descended into this subterranean canal by a hole near St. Luke's Asylum, walked along as best we could, breathing the balmy sewerage air, to a point at the East end of London, where we emerged. It is needless to say that as a safeguard against accidents, we took with us a supply of alcohol; and, to make our visit and report more picturesque, we stopped on our way and had lunch with what appetite we could muster. This experience taught us, I hope, to look with indulgence upon the occasional breach of the law of temperance by professional sewermen. On coming into the free air above I felt as I fancy Dante felt on passing from the Inferno into Paradise. No one was the worse for the adventure."

Ambulant Treatment of Fractures of the Leg.—Dr. C. Walther, in the *Revue d'Orthopédie*, has made a critical study of the methods which have been tried by German surgeons to secure the use of the legs in standing and walking during the process of healing in fracture. In the first place, he takes exception to the term "ambulant treatment," and suggests "treatment by action" as contrasted with "treatment by rest." The question is, is it possible to enable one to walk usefully who has an united fracture of the leg or thigh? (By "usefully" meaning the resumption of work, sitting or standing.) The apparatus must be so arranged as to take from the lower segment, below the solution of continuity, the pressure from the weight of the body. The apparatus used by Korsch and Bardeleben was first applied to fractures of the malleoli and leg, and afterward to osteotomies and resections. The principle on which they were employed was that of continuous extension, first made actively while putting on the plaster bandage, second passively continued by the apparatus. The writer, in the *Revue de Chirurgie*, 1895, had shown that continuous extension could not be exercised except by elastic bodies, or by the action of a weight; by any other means it is intermittent or illusory. Burns' orthopedic apparatus is the one most widely known; it consists of a plaster bandage to which are attached two hollow tubes fastened above at the root of the thigh to a padded metallic ring, taking its point of support at the ischium. Below, a stirrup fixed two or three centimeters below the plaster surface of the foot, maintains the foot above the ground while standing. Bardeleben enumerates the following claims for the new treatment: It would prevent the formation of scars, antagonize atrophy of the muscles, hasten formation of the definitive callus, keep the organism in good physiologic condition, and give great help to the aged, to alcoholics and to all with debilitated constitution.

1. All kinds of apparatus, however delicately applied, can produce scars by pressure on the point of support, or by some disturbance of nutrition from other cause. If this is so when the patient keeps his bed, the limb is immobile and nutrition is least disturbed, how impossible to avoid it when the limb is down and circulation and innervation are interfered with by pressure much more considerable.

2. The pressure inward on the tissues by the padded ring and outward by the consequent edema, interfering with circulation, will more than neutralize the good effects of muscular action; besides, action itself is refused if it can not take place without suffering.

3. The definitive callus is formed only after five or six months when the apparatus has already been taken away. Whatever increased nutritive gain to the fragments there might be in the increased activity, would be counterbalanced by the more frequent displacement of the contiguous ends of the fragments, this being known to be the most fruitful source of fibrocartilaginous union, thus postponing indefinitely the definitive callus.

4. The restraints within doors are about the same, because the treatment does not admit of resuming the usual employment.

5. Alcoholics suffer from delirium tremens too soon after the accident to be benefited by the apparatus, which is not applied till between the eighth and fifteenth days.

The points of support on the thigh must be the skin, the muscles and the bones. The skin in its intolerance to continued pressure, in its elasticity and in its mobility over the subjacent parts coated with the secretion of its numberless glands, would never be anything but an uncertain and intolerant point of support. The appliances to its wrinkling surface would cause suffering, phlyctenulæ, excoriations and scars. In the leg the gastrocnemius is the only support for an apparatus applied to the muscular tissue. If it is utilized its skin covering must participate, the muscle will atrophy and, at best, the force will be applied at the point of insertion of the tendo Achillis in the calcaneum so as to exert pressure upward on the lower segment of the fracture, the very thing sought to be avoided. As to the bony supports: The first indication is to maintain the foot above the ground by means of protectors embodied in the plaster bandage. The second is to find, above the solution of continuity, points of solid support on the bones of the leg or pelvis. There are only the tuberosities of the tibia in the leg. The condyles of the femur project too far for the tibial region; and it is out of the question to employ the patella because of its mobility. Besides, the skin would be intolerant of an apparatus applied over such sharp angles as those of the tuberosities of the tibia. The ischia offer better support when the fracture is above the knee, being solid, protected by a thick pad of cellulo-fibrous tissue imbedded in fat, which lessens shock and pain from pressure. But, with all this favorable, the most delicate skill in application would be needed as well as the most expensive materials, to utilize this point of support successfully; and there would still remain the danger of ankylosis of three large joints, besides the risk to be taken in interference with circulation, to edema, scars, etc.

The author believes that few, except transverse fractures of the leg, could be benefited by the "ambulant treatment." In the aged, in children, in most women and in fat, over-muscular or too feeble men, it would be contraindicated, or impossible. He sees in this method no real advantages as to definite results; he thinks it impracticable, for to apply suitable apparatus, exceptional skill would be needed to secure proper traction on the parts and permit use of the limb in walking. Besides, the cost would bar it from those most to be benefited by it. His conclusion is: To hope to enable those with fractured femur or tibia to walk usefully before consolidation, is at present a beautiful dream whose future, however desirable, can not yet be foreseen.—*Clinical Recorder.*

Imperforate Anus Treated by Kraske's Operation; Recovery.—Dr. Matas, in the *New Orleans Medical and Surgical Journal,* records a successful operation for the relief of congenitally imperforate rectum in a well grown male infant. The operation was done forty hours after birth, without anesthesia. There was no loss of blood, no blood vessels having been encountered. The infant went to sleep soon after the conclusion of the operation. A cough, the prodrome of pertussis, which was epidemic in the locality at the time, was noticed on the day following the operation. This complication seriously threatened the final success of the operation. The serious nature of the case was fully explained to the parents and an operation urged that would permit the establishment of an outlet through the normal anus or perineum, or of an artificial anus elsewhere, if the exploration of the pelvis revealed such a condition that made the restoration of the intestinal canal at the anal region an impossibility. The parents at once consented. The general condition of the baby was excellent. The abdomen, though slightly full and tense, did not give evidence of intestinal paresis. The stomach retained a few teaspoonfuls of sweetened water without vomiting. The frequent paroxysms of violent cough unquestionably precipitated a complication which would at least not have presented itself so soon after the operation. In consequence of the large pelvic outlet in the sacro-coccygeal region and the laxity of the anal orifice from weak sphincter control, the rectum began to protrude, and not many days elapsed before three inches of prolapsed rectum remained constantly extruded from the anus. All attempts to control the escape of the bowel failed. The constant protrusion of the rectal mucosa caused irritation and tenesmus, which distressed the child exceedingly and prevented rest. None of the local applications had the least influence in preventing the recurrence of prolapse and it became necessary to operate. "Having no faith in the palliative operations in such a case, I decided to excise the prolapse. Therefore, twenty-eight days after the first operation, I amputated three inches of protruding bowel. After finishing this operation, we found it necessary to circumcise the child on account of phimosis, which made urination painful. These operations were followed by no unpleasant consequences, and in ten days the child was entirely well, with the exception of an incipient inguinal hernia, which became less troublesome as the cough diminished. It is also worthy of note that, in addition to the anal defects, the phimosis and the disposition to hernia, the child was born a unilateral cryptorchid, one testicle having failed to reach the scrotum. After this event the child continued to grow and do well, though he has always been pale and not as vigorous as his other little brothers. About a year and a half after the operation, the baby was brought to the city and I had the opportunity of examining it. The child had normally three or four bowel movements a day. It was difficult to ascertain whether there is much bowel control, but the finger feels a certain amount of resistance and contraction when it is introduced a short distance beyond the anal margin. The baby appears to be disposed to frequent diarrheal and dysenteric attacks, which are probably due to digestive disturbances. When these occur, the anal region becomes irritated, and has to be most carefully washed to prevent eczema and excoriations. It is also noticed that under these circumstances there is no fecal control. There is also a tendency to recurrence of the prolapsus recti, though in a much less degree than when this condition first existed. The prolapse now appears to be due to the tenesmus of dysentery. It is probable that the operative treatment will be required if the prolapse continues to increase. If such is the case, I shall advocate a simple rectopexy or anchoring of the rectum by Verneuil's method. While the child has thus far survived, and is apparently in very fair condition, it is evident that it has had to travel over a very hard road, and that its future path is not likely to be strewn with roses. After a careful investigation of the literature of the subject, I find that this is the tenth in a list of twelve cases of ano-rectal imperforation in which relief has been attempted by Kraske's method or its modifications." The cases are reported by Vincent of Lyons, two cases, in 1887; Ceci of Genoa, 1890; Burrell, Boston, 1891; Chaput, Paris, 1892; Poisson, Nantes, 1892; Czerny, Heidelberg, 1893, two cases; Fochier, Lyons, 1894; the present case, New Orleans, 1894; Elliott, Boston, May, 1896; W. W. Keen, Philadelphia, December, 1896. Of the twelve cases reported only two succumbed to causes directly connected with the operative treatment, and in one of these death was caused by peritonitis due to the infection of the peritoneum with an exploring needle previous to the sacral operation (Czerny's second case). Eight out of the twelve cases died at variable periods, from a few days to two months after the operation, from diarrhea, marasmus, capillary bronchitis, and other conditions not directly connected with the operation. Four of the twelve cases had survived up to the time when they were reported; in Burrell's case, four and a half years after operation; in Poisson's, three years; in the writer's case, two years and nine months; in Elliott's case, six months after the operation.

Resume of John Howard's Sanitary Labors.—The editor of the *Scalpel* closes a long essay on the life and deeds of the great Howard with a digest of his sanitary efforts. He says: John Howard had no sort of sympathy with crime or criminals, but a sense of justice, a submission to duty, a moral and physical courage, an industry and perseverance, a truthfulness, simplicity and modesty, which never before met in the same man, and probably will never meet again. He was emphatically one of those Englishmen to whom, if I may use the grand patriotic language of Milton, "God, when he would work some great reformation, does as his manner is, first reveal himself."

Such a life if written would have to deal with the poor in prison and the sick in hospitals. It would be a tale of human suffering, but the moral would amply compensate for the painful details necessarily brought before the reader. It should be treated as Dr. Guy says, as a romance; a romance which shall to the end of time amuse and instruct, reprove and encourage, not those only who speak the language that Howard spoke, but those, too, all the world over, who are able to appreciate the magnitude of the evils that he attacked, and the greatness of the victory which he won.

Howard's labors were truly Herculean. We can hardly realize that it was in the physical power of one man to do so much work. In his mission of charity he traveled over 45,000 miles, and went through hardships and perils of the most trying kind. Fortunately, he was spared to write out the history of his travels. Howard's explorations differ from those of Livingstone, Speke or Burton. They were of a nature which would only attract a man animated by the highest and purest feelings of humanity. They would be repellant to an ordinary mind. To live in an atmosphere of crime and misery, to have to descend into the miserable cells and dungeons described by him in his "State of Prisons," to have to witness the revolting cruelty and the unkindness of man to man, were duties which few would be capable of undertaking. Howard suffered from the very sufferings he had to witness, and from his want of power of being able to redress them. He visited in Ireland fifty prisons and goals. Out of that number he found five clean and forty-five dirty. It will be noticed that the Scotch prisons were in an equally insanitary condition. Howard attempts to explain this. He says that the original cause of this seems to have been the following very severe maxim in the Scotch law: After a debtor is imprisoned he ought not to be indulged the benefit of the air, not even under a guard; for creditors have an interest that their debtors be kept under close confinement, that by the squalor carceris they may be brought to pay their debts. He visited in Scotland twelve prisons and gaols, and found none clean and twelve dirty. Howard has left us an almost equally unfavorable picture of the state of English prisons. He visited in England 253 prisons and gaols, and found ten clean and 243 dirty. He visited 108 prisons and gaols abroad and found the majority of them clean. I have laid it down as the experience of Howard that dirt and disease went together, so that the health of prisoners depended in a great measure upon cleanliness. We can form a very easy approximation of the value of Howard's sanitary reforms from one disease alone, gaol fever. It is a disease unknown at the present day in connection with prison life; it was but too well known in the days of Howard, not only in England but on the Continent. Taking Howard's figures we may agree with Dr. Guy that the disease haunted one-fourth at least of our gaols. On the hulks on the Thames, amongst the prisoners, the disease seems to have been most destructive. "From August, 1776, to March, 1778, 176 prisoners died out of 632. This is more than one in four." Taking this as an estimate we may make it the basis for the number of lives he has been the means of saving, not alone in England, but over the whole civilized world.

For the purpose of comparison it is unnecessary for me to state the number of prisoners who are confined in English and foreign prisons at the present moment or who have been confined during the past fifty years. As population has increased, and as crime unfortunately preserves an equal ratio of increase, we may assume that there are more prisoners now than there were in the days of Howard. The gaol fever is now extinct. It has been stamped out by man's agency and by attention to the elementary laws of health. If one in four died in the time of Howard of gaol fever, and none die at the present day, what a vast saving of life has been effected. Every life saved must be credited to the great prison reformer. If we only take the prison returns of fifty years the net gain in life would reach a goodly roll. By attention to hygiene, to construction and arrangement of prisons, our prisoners have been saved from the gaol and other fevers, and by the humane management of prisons now adopted, prisoners are not only saved from disease but preserved in a state of health.

PRACTICAL NOTES.

The Application of Collodion and Salves in Ophthalmology is much facilitated by using a glass stirrer with a rounded tip. The substances do not adhere to the glass, and it is easily sterilized, while the smooth, rounded surface can not injure the eye.

Strychnin in Chloroform Poisoning.—In a desperate case of voluntary poisoning with chloroform, after the failure of all other means, the patient was restored by injecting, several times, about three centigrams of strychnin, seconded by artificial respiration and electricity. No deleterious effects were noted.—*Semaine Méd.*, December 15.

Convenient Method of Preserving and Diluting Tuberculin.—To avoid wasting the expensive substance when small injections are required, Tuwim fills a Pravaz syringe with the original tuberculin and stands it upright in a glass with the hole in the needle stopped with a soft cork, all under the strictest aseptic precautions and protected from the light. When needed, the tuberculin is squeezed out, one drop at a time, and the consistency is such that the quantity in each drop can be calculated with great accuracy.—*Deut. Med. Woch.*, December 2.

To Differentiate the Grippe in Deceptive Cases.—A drop of blood is drawn from the finger into a tube, which is closed with a little cotton and laid away for twenty-four hours. At the end of this time the blood has become converted into a culture of the diplo- and strepto bacilli characteristic of the grippe, extremely motile and easily visible with an ordinary microscope, 600 to 700 diameters. If negative results are obtained in twenty-four hours repeat in forty-eight.—T. V. Coronado in *Revista de Méd. y Cir. de la Habana*, December 25.

Indigo-Carmin Test for Milk.—If a few drops of a solution of indigo carmin are added to milk the tint produced by it vanishes as the action of the microbes in the milk decolorizes it. The length of time the milk has been standing can therefore be determined by the duration of the tint; the older the milk the briefer the period of coloration. In fresh milk it lasts about twelve hours at 15 degrees C.; five hours at 15 to 20 degrees and four hours at 20 degrees, while it vanishes almost instantaneously when there are several decigrams of lactic acid to the quart.—Vaudin in *Bull. de l'Acad. de Méd.* November 30.

Pyramidon.—The value of this new form of antipyrin (*vide* JOURNAL, Vol. 29, page 1318), is confirmed by the results announced from v. Limbeck's clinic where it has been tested in a hundred cases of various diseases. Its antipyretic effect in chronic tuberculosis was highly satisfactory in thirty-two cases out of forty, and it was so successful in nine cases of articular rheumatism that it is recommended as a substitute for salicylic acid whenever there is intolerance. The fever not only subsided but it seems to have a specific effect on the rheumatism, 1.5 gram in fractional doses during the day. Its analgesic effect was also striking in migraine, trigeminus neuralgia, and other nervous pains, for which it is especially recommended. The effect is slight in chronic rheumatism, negative in malaria and nervous tachycardia and there was intolerance in two tuberculous patients.—*Wien. klin. Woch.*, November 4.

Prolapsus of the Female Urethra.—This trouble is rare (100 to 120 cases on record). It sometimes occurs during a coughing paroxysm in pertussis. Various methods of treatment have been devised, but the use of the knife is frequently followed by stenosis, and by death in one case. Emmet's "buttonhole" is not advisable on account of the fistula left and the double operation. Kleinwächter's method of slitting the urethra and suturing the beginning of the prolapsus to the base, is only applicable to partial inversion, but Israel's method is effective, simple and permanent in its results, as Wohlgemuth has confirmed recently, describing his experience with it in the *Deutsche Med. Woch.* of November 4. The protruding mucous surface is cauterized in narcosis with the Paquelin in a radiating series of burnt strips lengthwise of the urethra, through the entire thickness of the mucosa. The cicatricial contraction that results puts an end to the prolapsus. Two applications were necessary.

Minor Points in Gynecologic Technique.—After vaginal hysterectomy Bélin applies tampons in three layers; aseptic, aniline dyed strings are fastened to each tampon, a different color for each layer, so that one layer can be removed and replaced at variable times without disturbing those that should remain undisturbed for longer periods. This trifling innovation, he states, has rendered him inestimable service during the last year. He also uses a cone-shaped cake of soap in making the toilet of the vagina, which does not slip out of the hand like the ordinary cake and get lost in the depths. Reverdin's further improvement consists of a tube passing through the cone-shaped cake of soap, which fits into and closes the orifice of the vagina, while the water passes through and distends the walls. We note *en passant* the increasing tendency evidenced at the last French Congress of Surgery to prefer the abdominal route for hysterectomy.—*Journal de Méd. de Paris*, December 19.

Olive Oil in Hepatic Colic.—Barth reports the successful result of the administration of large amounts of olive oil in two cases of hepatic colic with icterus, caused by incarcerated gallstones. In one case 200 grams were taken every other day, and in the other 150 grams each day, the taste improved by a few drops of essence of anise. Part of the oil was found in the feces in a saponified condition, in the shape of small green particles which were at first erroneously supposed to be fragments of the gallstones. The rest was split into stearic acid and glycerin. The oil, besides lubricating the mucous surfaces and thus facilitating the expulsion of the stones, excites powerfully the secretion of bile, which flushes the biliary passages and removes particles that might ultimately develop into stones. On account of the increased secretion of bile, oil affects the system injuriously in adhesive cholecystitis, and it is also useless in dilatation and ascending suppurating infection of the biliary passages, and even injurious, on account of the impaired digestion and extra work forced on the liver.—*Semaine Méd.*, Dec. 1, 1897.

Improved Method of Sterilizing Catheters.—H. Alapy has perfected his method of steam sterilization as follows: A glass tube is selected large enough to hold the catheters without crowding, and a sheet of filtering paper, rolled in the form of a hollow cylinder, is slipped inside, which clings tight to the glass and absorbs the condensed moisture. The catheters are placed inside the paper, the tips up. The tube is then plugged at both ends with cotton in gauze, the lower plug pushed well up into the tube, which is then placed in the steam. When removed from the steam the paper is taken out and the tube shaken to prevent the catheters sticking together. They can be left in the tube until needed, all in sight. Experiments with anthrax spores, etc., showed that even the smallest catheters were thoroughly sterilized by this method in seventeen, fifteen, twelve, and even in ten minutes. Those that had been oiled and infected several days previously, and not cleaned, were rendered sterile in twenty minutes. He recommends the method as simple, certain, and except for spreading a little in the course of time, the catheters stand frequent sterilization in this manner without injury.—*Cbl. f. Chir.*, November 6.

Capacity of the Stomach in Infants.—A comprehensive study of this subject in Escherich's pediatric clinic results in the statements: 1. That the stomach of maternally fed infants is smaller than in the artificially fed. 2. That the true capacity of healthy stomachs is less than that of the functionally or anatomically morbid. 3. That the elasticity is greater in small stomachs, and 4, that the true capacity of the stomach is a function depending upon the size of the pylorus. With a narrow pylorus the capacity is large and vice versa. The practical importance of the research lies in the facts established that every healthy infantile stomach can by passive increase in the internal pressure, or from lavages, attain a capacity and retain it for some time, which stimulates dilatation. Large capacity after a lavage does not indicate either atony or ectasia. Repeatedly produced artificial gastroparesis injures the functions of even a healthy stomach musculature, much more where there is motor insufficiency. Consequently loading the infantile stomach should be solicitously avoided, and systematic lavages completely rejected, especially where there are gastroparetic or dilated conditions. The maximal single amount that should be allowed a normally developed infant is: First month, 90 c.cm.; second, 100; third, 110; fourth, 125; fifth, 140; sixth, 160; seventh, 180; eighth, 200; ninth, 225; tenth, 250; eleventh, 275; twelfth, 290.—Moscow Congress, *Wien. klin. Woch.*, November 4.

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SATURDAY, JANUARY 15, 1898.

THE RENEWAL OF THE ANTIVIVISECTION AGITATION.

Dr. Gallinger of New Hampshire on Dec. 15, 1897, gave notice to the United States Senate of his intention to take up at an early day Senate bill 1063, with a view to deciding by a vote whether the bill shall pass the Senate. The bill is the same as S. 1552 of the Fifty-fourth Congress, "for the further prevention of cruelty to animals in the District of Columbia," which was favorably reported from the Committee on the District, May 26, 1896, but which failed to obtain consideration during the short session, or, as stated by Dr. Gallinger: "Upon solicitation from several senators saying that they were receiving letters from their constituents protesting against the passage of the bill, I allowed it to drift along and did not ask for the consideration of it." It was introduced in the present Congress March 22, 1897, and having been reported favorably from the Committee is now on the Calendar, No. 136. Moreover, the deterring influence of the solicitations from the Senators aforesaid seems to have evaporated, as the bill will not be allowed by its senatorial pilot to drift along any further but will be brought up for consideration and vote.

We have already in our issues of Jan. 23, Feb. 6 and April 3, 1897, called attention to the gross injustice of the proposed legislation in its assumption that the cruelties practiced by the biologists of the District of Columbia, many of them Federal officers and all scientific men of National or more extended distinction, are of such a character as to require Congressional legislation for their restriction. The absurdity of the main argument of the originators of the bill must be manifest to all who are not zealots in the cause of the Humane Society. This argument calls for legislation to restrict scientific research in the District of Columbia because members of the Humane Society have testified to the horror which filled their souls on observing the atrocities committed in certain of the biologic laboratories of Europe and in thinking of the atrocities which might similarly be committed in the laboratories of the United States. We have called attention also to the assertions on behalf of the bill that no advance has been made in medical knowledge by any work conducted in the laboratories of the biologists, assertions which can be explained only by gross ignorance of the recent history of medical and sanitary progress, or by refractive errors of intelligence which throw all facts bearing on this particular subject out of the focus of mental appreciation. We have also shown, on the other hand, the efforts made by the profession to quiet this agitation of the so-called antivivisectionists. We have shown that not only all the medical associations and societies of the country, but all the scientific and sanitary societies, have memorialized Congress in opposition to the bill, and that even the Department of Agriculture has entered its official protest, citing the benefits to the lower animals themselves in connection with pleuropneumonia, tuberculosis, glanders, anthrax, hog cholera and Texas cattle fever, which could not have been obtained had the Bureau of Animal Industry been handicapped by such restrictive legislation as is proposed by S. 1063.

The American Medical Association has done its duty in this connection by placing itself on record as opposed to the bill, but individual members of the Association should not remain passive because resolutions have been adopted in general meeting. Resolutions are all very well in their way, but it is questionable if they will have as telling an effect on a vote of the United States Senate, as an argument by individual members of the Association to individual members of the Senate. Every member of the Association whose opinions have weight should place his opinions where their weight will be felt in a struggle to preserve the right of the medical man to labor in the cause of humanity untrammeled by the restrictive demands of "an over-zealous and intolerant local society" which, according to the Assistant Secretary of Agriculture, "appears incapable of taking a broad and liberal view of the subject."

Medical men in every State of the Union should aid their brethren in the District of Columbia in this fight against restrictive legislation, for if this bill is carried in the United States Senate, its provisions will speedily be brought home to them by the consideration of similar measures in their State legislatures.

Let us have a Department of Public Health!

ETHER AND CHLOROFORM.

In the *British Medical Journal* of Nov. 20, 1897, there appears an interesting paper on the comparative action of the principal anesthetics, ether and chloroform in particular, which was read before the section on anatomy and physiology at the late meeting of the British Medical Association by its president, Dr. AUGUSTUS D. WALLER. It is noteworthy in that it gives the results of experimental studies by a prominent physiologist, whose conclusions have, therefore, a certain authority and it was deemed of sufficient importance to form the subject of a leading article in the same issue of the *British Medical Journal.*

Dr. WALLER's method of experimentation was to test the direct action of the anesthetic on the excitability of the nerve, taking freshly prepared nerves and submitting them to electrical excitation while enclosed in a chamber filled with the vapors of the different anesthetics, the effects being shown by a photographically recording galvanometer. By this method he tested the effects of the vapors of ether, chloroform, nitrous oxid, carbon dioxid, ethyl bromid and other anesthetics upon the nerve and found the results in striking agreement generally with their otherwise observed effects. Thus, ethyl bromid was evanescent but irritating, ethyl iodid produced lingering after-effects, and chloroform and ether powerfully anesthetized the nerve as shown by its galvanometric reaction, the formerly permanently and completely the latter temporarily. It is in regard to these last two agents, which are so extensively employed as anesthetics, that he specially directed the investigation and deduced the practical conclusions.

The chief question at issue in the researches of the Hydrabad commission on chloroform was whether this agent caused death through the heart or the respiration, and the latter view is that maintained by the Edinburgh school, which still advocates by preference chloroform as an anesthetic. It matters practically very little how death occurs, if it does occur, and the real question is what can be done to prevent it. Dr. WALLER's experiments show that both ether and chloroform have a paralysant action on the highest form of tissue, nervous substance; the former temporarily, the latter permanently. The most important results of his study are summed up by him as follows:

1. Using ether and chloroform at an indefinite but high degree of concentration (about 40 per cent. and 10 per cent. respectively), the nerve has nearly always been anesthetized (= temporarily immobilized) by ether, killed (= finally immobilized) by chloroform.

2. Using ether and chloroform at various definite degrees of concentration (5 to 40 per cent. of the former, 1 to 5 per cent. of the latter) *the action of chloroform has been seven times that of ether.*

3. The action of mixtures of ether and chloroform (seven parts of ether to one of chloroform) is cumulative, the sum of the action of the two constituents.

4. Carbon dioxid *per se* does not increase, but rather diminishes the prolonged anesthetic effect of chloroform.

It will be readily seen that the above conclusions have very important practical bearings, and it is the discussion of these that forms the most important part of Dr. WALLER's communication. If chloroform is seven times stronger than ether in its anesthetizing effect, the quantity of it required is necessarily small and the margin between the proper amount and excess is consequently diminished, thus creating a serious possibility of accidents, quite apart from any specially lethal qualities it may possess. Dr. WALLER criticises the statistics of deaths from chloroform and points out how far they may have been affected by unconscious prepossessions. The fact that the results of the administration have been so generally favorable that it requires the collection of thousands of cases to furnish any appreciable comparative ratios of mortality aids in this error; it is impossible for some with only a fortunate experience to appreciate the real possibilities of danger. Another fact vitiating the statistics is that only a portion of the chloroform fatalities are ever reported and Dr. WALLER, judging from personal knowledge, is inclined evidently to believe that the unreported cases considerably outnumber the reported ones. In Great Britain where chloroform is, more than in America, the commonly used anesthetic, this is very possibly true, and it should be borne in mind in estimating the value of such statistics. That this should vitiate hospital statistics, as he states it does, is less comprehensible and certainly less excusable.

The fourth of the conclusions reached is a rather striking one, and is perhaps liable to misconstruction as regards its practical bearings. If CO_2 is an anesthetic itself and yet an agent capable of aiding the recovery of the nerves from the effects of chloroform, it might be understood that the dangers on the side of the respiration in chloroform anesthesia are non-existent, or at least overrated. Dr. WALLER takes pains to counteract this error, the danger from impeded respiration in chloroform anesthesia is not from the accumulation of carbon dioxid, but from the accumulation and stagnation of chloroform vapor in the lungs. It is possible, he holds, that some mixture of CO_2 may be beneficial in the outset of chloroform administration, and this may be one of the factors in the success of its use in the hands of its adherents, but he expressly says that he does not recommend the administration of carbon dioxid with chloroform, or yet the administration of chloroform alone, and while he says that he is not "altogether adverse to its use," it is evident that the occasions for its employment are in his opinion very limited in number. It is in minor surgery especially that he deprecates its use, and he states the case forcibly in the following two propositions, which he calls "the chloroform dilemma."

"If chloroform is dangerous under all circumstances, it may not be employed in minor surgery. Death in this class of cases is therefore unjustifiable, and should be considered as a criminal offence. If chloroform is dangerous only when unskilfully administered, then again death by chloroform is unjustifiable, and ought to be considered as a criminal offence."

While this dilemma might be better stated, its logic is certainly worthy of consideration; it leaves very little chance for escape from uncomfortable associations with any accident from the use of chloroform. Undoubtedly the greater ease and convenience of anesthesia with this agent will still ensure its use in many cases, but Dr. **Waller**'s authority will probably have much weight and influence in diminishing the popularity it still enjoys.

The conclusion to be deduced from the investigation is that it is hardly necessary to seek for special dangers on the side of the heart or the respiration in anesthesia, as nearly all anesthetics are direct paralysants of nerve tissue, and the risk is not so much in the special organ they affect as in their strength as neurotic poisons. The one exception appears to be nitrous oxid, and we may possibly assume, with **Kemp** in another paper in the same issue of the *British Medical Journal*, that it acts in some way on the highest nerve center, the cerebral cortex. Whether it is as absolutely safe as is claimed is possibly open to question, though there is little doubt that it is comparatively safer than some other agents. For lengthy operations ether, with all its disadvantages, still seems to be the safest and therefore the preferable anesthetic. The study also emphasizes the necessity of the utmost care in the administration of chloroform, when that seems necessary, of avoiding the slightest possibility of carrying the dose above the danger point, which may be assumed to be not far above the optimum anesthetic quantity. The strength of the agent and the consequent small amount required leave a correspondingly narrow margin of safety in this case. The stronger the agent the greater the caution, altogether aside from any local action it may be supposed to have on special organs.

DIABETIC COMA.

Prout's words that "Diabetic patients constantly live on the brink of a precipice," are especially applicable to the most dreaded of all the complications of diabetes, namely, the coma characteristic of that disease.

In a recent lecture **Thomas B. Futcher**[1] reviews the etiology, symptoms and treatment of diabetic coma. True diabetic coma was, it will be remembered, first accurately described in 1874 by **Kussmaul**. The frequency of the complication is shown in the collection of fatal cases by **Stephen Mackenzie** from the London Hospital, in that all the cases under twenty-five, with one exception, died of coma. Of 400 cases studied by **Frerichs** 250 died, and coma was the cause of death in 150 instances. Of the 39 cases treated in the Johns Hopkins Hospital 15 died, and in 12 death was produced by coma.

Young people, particularly children, are more liable to die of coma than are older patients.

Saundby ranks constipation very high as a predisposing cause, as it diminishes elimination and affords time for fermentative processes that may produce toxic substances. In some cases coma has come on after nervous shock and exposure to cold.

Of the many theories devised as regards the exciting cause of diabetic coma it is necessary at this time to refer only to those which attribute the coma to the presence of either acetone, diacetic acid or β-oxybutyric acid. Now these three substances are very closely related, as shown by their chemic composition and reactions. The detection of acetone in the urine of patients with diabetic coma first led observers to believe that this was the cause of the coma, a view now no longer held because acetone can be given to animals in large quantities without causing intoxication. Acetone also occurs in the urine in many other diseases, especially in severe cachexia, as well as in certain acute infectious diseases.

The appearance of acetone in the urine in diabetes should put the physician on his guard, as its presence is often succeeded by that of diacetic acid and β-oxybutyric acid.

In 1874 **Rubstein**[2] demonstrated that the substance discovered by **Gerhardt**[2] in 1865, and which gives a Burgundy red color with ferric chlorid, was diacetic acid. Now it was for some time believed that this acid resulted from the oxidation of sugar, and **Minkowski**[2] tried to show that the intensity of the ferric chlorid reaction and the amount of sugar in the urine ran parallel, but that sugar is not necessary to the production of diacetic acid is shown in various ways, especially well by the fact that this substance has been repeatedly demonstrated in the urine of fevers, carcinoma, and other diseases without glycosuria. The present opinion is that diacetic acid and acetone are products of albuminous decompositisn. In the majority of instances of diabetic coma diacetic acid appears in the urine previous to and during the attack, but **Kussmaul**[2] and **Frerichs**[2] have shown that it does not possess any poisonous properties, because ten to twenty grams of the acid can be given without any grave symptoms.

In 1884 **Stadelmann**, **Kussmaul** and **Minkowski** showed that the urine of patients with diabetic coma contains considerable quantities of β-oxybutyric acid.

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[1] New York Medical Journal, Dec. 18, 1897.

[2] Futcher, loc. cit.

This acid is now believed by most observers to be the exciting cause of diabetic coma. It results from decomposition of the body albumins, and many believe that it is the first stage in the formation of diacetic acid. The amount of β-oxybutyric acid eliminated daily may be as much as 20 gms. Its occurrence in the urine in diabetes is of the gravest moment, as it is permanent and has a constant tendency to increase. Von Noorden[3] shows that this symptom is of the gravest prognostic significance; in most cases after a few days or weeks, diabetic coma ensues and the case passes on to a fatal ending. Hence it may be concluded that diabetic coma is caused by an acid intoxication, due to certain products of decomposition of the body albumins, viz.: β-oxybutyric acid, and possibly also diacetic acid.

The premonitory symptoms of diabetic coma vary. It may begin with maniacal excitement, or more commonly abdominal pain or headache; the pulse is sometimes rapid. At times suddenly, but occasionally after headache and indefinite symptoms resembling alcoholic intoxication for a few hours or days the patient becomes somnolent, and more or less rapidly falls into deep coma. He now lies quietly with at most but slight clonic twitchings; pupils dilated; the eyes may be open, or the lids are slowly raised and lowered. The pulse is small and rather rapid; the temperature at first elevated, later sinks far below normal. The respiration is marked by deep, long-drawn inspiration, succeeded by short expiration. In spite of full aeration of the lungs a gradually increasing cyanosis arises, due apparently to obstruction in the peripheral circulation. The breath may have a fruity odor from the exhalation of acetone. In this condition the patient remains for from twenty to forty-eight hours, rarely longer, and then death follows.

Frerichs classifies cases of diabetic coma into three groups:

1. Those in which the attack begins suddenly, usually after exertion, and terminates fatally after a few hours.
2. Those in which the duration is longer, the attack being preceded by various symptoms, among others great distress and dyspnea, a condition called by Kussmaul "air hunger." The attack may last for from one to five days.
3. Those in which the attack begins without dyspnea or anxiety but preceded by headache, signs of intoxication, disordered gait and gradual onset of the coma. These cases were believed to be due to the action of the poison on the nervous system. The symptoms closely resemble alcoholic intoxication.

The prognosis is grave. There are only three or four cases reported in which recovery has taken place. Prevention is therefore the primary indication in the treatment. All predisposing causes such as constipation, fatigue, nervous shock and cold should be avoided. Von Noorden says that in the prodromal stage when this is recognized, a change of diet, no matter what this may have been, often exercises a beneficial influence. A large amount of alcohol in small doses is necessary. Constipation should be relieved by mild laxatives. Large doses of alkalies have been recommended, e. g., six or eight drachms of bicarbonate of soda per day, according to the theory that the condition is one of acid intoxication.

When the coma has actually set in our present remedies are helpless. Transfusion of blood, inhalation of oxygen, injection of weak solutions of phosphates and chlorids of sodium into the veins, and of a 3 per cent. solution of sodium carbonate have all been used. Intravenous injection of the last solution was successful in only one case of seventeen collected by Chadbourne[4], temporary improvement being obtained in seven. A very common method of treatment at the present time is the subcutaneous and intravenous injection of quantities of normal saline solution at frequent intervals. Von Noorden recommends this method highly, and it would seem to be a rational one. In ten of the twelve cases in which coma developed in the Johns Hopkins Hospital this treatment was used, and in two of the cases the patients were restored to consciousness so that they would have been capable of making a will. Subsequently both cases terminated fatally. In three other cases the pulse was improved and the respiration rendered much less labored. Subcutaneous and intravenous injection of salt solution seems to give the best results yet obtained in diabetic coma. In addition injection of camphor and ether may be advised, because they are indicated by one symptom seldom absent in diabetic coma, namely, weakness of the heart.

HEALTH AND LONGEVITY.

The influence of various occupations upon health and longevity is the subject of an interesting investigation just completed by an officer of the Registrar-General's department of the British government. A vast collection of figures and comparative tables have just been issued as a public document, and although at first glance the array of statistics seems formidably dull, some of the deductions from them are instructive and of the widest interest. First and foremost comes overwhelming proof that the work or occupation of some sort, is the greatest promoter of longevity. It is almost alone in England of all civilized countries that this fact can be brought out clearly in public statistics, for it is only in England that the leisure class, so called, is sufficiently large for the comparison to be made. The disparity between the mortality of "occupied" and of "unoccupied" males is very great in favor of the workers, though the data do not allow the naming of any precise percentage when certain necessary allowances have been made.

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[3] Twentieth Century Practice of Medicine, vol. ii. p. 95.

[4] Quoted by Futcher, loc. cit.

The influence of profession upon health and mortality, it is pointed out, begins to be strongly manifested at about the age of 25 years and continues until 65 years. Of course, the employments usually regarded as dangerous figure prominently, file-making taking a bad pre-eminence. The publican class (saloon-keepers) comes next. Innkeepers themselves die more rapidly than their servants, alcoholism and diseases of the liver being the chief causes. The mortality figures of public-house keepers show seven times and of their servants four times more rapid death rate than for the general average of occupied males. It is curious, however, that the death rate for these two classes is highest in the industrial districts of England and lowest in London. Brewers and butchers rank next among important occupations on the high mortality list. They are respectively two and one-half and two and one-fourth times the standard. Chimney-sweeps, dock laborers, coachmen and cabmen are all on the wrong side of the mortality average. At the other extreme are most of the liberal professions, and the clergy enjoy the enviable distinction of passing the greatest number of years in this vale of tears.

Locality seems to have a startling effect upon the mortality records, although this cause is shown to be much more apparent than real. Taking England as a whole, it is shown that 100,000 males born are reduced to 75,149 at the end of the fifth year, while 100,000 females will number 78,324 at the end of the same period. But in certain selected, so-called healthy districts of England and Wales, this reduction is not accomplished until after twenty-nine years in the case of males and twenty-seven years in the case of females. The contrast is even greater in the case of a single city. Thus, in the township of Manchester, which includes only the well-populated section of the city, 100,000 males are reduced to 62,326 in five years and 100,000 females to 66,623 in the same time. But in the healthy districts of Manchester this reduction is not accomplished until the age of 50 among males and the age of 48 among females. Whence it is fair to conclude that the general manner of life and condition of poverty or comfort are much more important factors in the problem of life than mere locality.

THE JOURNAL AND THE ASSOCIATION.

The JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION began its new year with an increased number of pages, and proposes to continue to furnish the same amount of reading pages throughout the year, thus putting it a safe distance ahead of all its American contemporaries.

A new press has been purchased and is now in operation. The vast amount of MSS. now in the office awaiting publication will, we trust, be reached much earlier, although the members must be aware that it is a manifest impossibility to make use of all the valuable material that comes in to the office, even with the increased number of pages.

The growth of the ASSOCIATION during the past year has not been exceeded by its growth in any previous year, and all that is now needed to maintain it in a healthy condition is, that the members shall once more come to the front, look at their JOURNAL critically, compare it with similar publications, and induce their friends, not already members, to join the great ASSOCIATION. There is no reason why the AMERICAN MEDICAL ASSOCIATION should fail to occupy the same relation to the whole profession that the British Medical Association does to that of Great Britain, where every physician in good standing with his fellows, is, or is supposed to be, a member of the British Medical Association.

As for the JOURNAL, its work in the past speaks for itself, and its growth in the future will depend upon the support and encouragement received from the members of the ASSOCIATION, subscribers and contributors. At no time has its prospects seemed brighter; at no time did it seem to meet more closely the views of its founders. That it is capable of still further improvement, no one doubts, as the moment it ceases to improve, then will it begin to decay.

Not only is the JOURNAL useful to the ASSOCIATION and its important members, but it has a still far-reaching influence beyond that noticed, because at no time has it been more widely quoted at home and abroad by other medical journals than at the present time. The higher average medical education of the present date is having its influence on papers read at the ASSOCIATION meetings; much better work has been done in its Sections, and altogether the retrospective view is pleasant. The increase of reading pages will not only give room for more original matter, but will probably increase the amount of space for Society Proceedings—a very important department of the JOURNAL of which it is impossible to over-estimate the value. Important discoveries and the results of individual research are usually presented first to the local society, although the proceedings are necessarily reported in smaller type, as even the capacious columns of the JOURNAL with its sixty pages of reading matter, exclusive of the advertising pages, can not afford space for everything in pica. The reader must himself to some extent, also separate the wheat from the chaff, but it is interesting to remember, for instance, that the two communications which seemed to attract great attention at Moscow, "MURPHY'S suture of the arteries," and "FRANK'S absorbable coupler," were both presented at a meeting of the Illinois State Medical Society, and reported in the JOURNAL, June 12, 1897, some time before the meeting of the Congress. "DOYEN's drain," which was also presented in Society reports, and numerous other instances, crowd upon the memory, of the important achievements of the vanguard of science modestly chronicled in "Society Proceedings" without even a distinction of a separate place in the index, long before the medical world in general awakes to a realization of their value.

In the last year an important historic work, never before translated into English, has been placed at the disposal of American surgeons through the columns of the JOURNAL, without extra cost, and it is therefore with some satisfaction that we reflect on the achievements of the past year, and venture to express the hope that at the close of the year 1898 we shall be able to show even more substantial progress.

To this end we again urge that the members once more take up the aggressive and use their utmost endeavors to make the ASSOCIATION and its JOURNAL a fitting and worthy representative for all that is good for the American medical profession. The membership should be brought up to 10,000 before the Denver Meeting. Great strides have been made toward that end, but let us not relax our efforts.

THE DEATH OF MR. ERNEST HART.

The death of Mr. ERNEST HART, the editor of the *British Medical Journal*, comes with a shock to his many friends in America, most of whom had already learned that he was in feeble health. They sympathized with him in his recent illness and operation, but from the reports published they had been led to believe that he was fairly convalescent.

His death leaves a gap in the ranks of medical journalism which can never be filled. He had an instinctive delicacy of judgment, made few mistakes and popularized the *Journal* as no man preceding him had been able to do, and at the same time made it one of the financial successes of the age. He had learned the art of being aggressive without offending, and the *Journal* under his management has been right in its advocacy of all those reforms in which the whole profession is interested.

As a writer he was forceful, accurate and aggressive. As a man he was unassuming, polite and agreeable. As a physician he was well informed, and in certain lines in advance of his time. He will be greatly missed, for his place in medical literature was peculiarly his own.

CORRESPONDENCE.

Foreign Medical Training for Recent Graduates.

VIENNA, AUSTRIA, Dec. 20, 1897.

To the Editor:—"Foreign Medical Training for Recent Graduates" is the title of a late editorial article in the JOURNAL, and as it is a subject of most vital interest to many young men who belong to this class, I propose to discuss the question briefly in this letter. I do this the more readily from the fact that many of my friends, who are aware of the fact that I have spent some years abroad, are in the habit of writing to me for advice as to where they had better put in a few months' time in brushing up on the practical points of their profession. I am prompted further in writing this letter, by the fact that I meet here in Vienna, every day, young physicians from the United States, full of energy and wide awake, who are working with an untiring will, but who, from the fact that they are ignorant of the German language and do not propose to stay here until they master the same, are, if not wasting their time, certainly not spending it in a profitable manner.

Let me suppose the case of a young man who has had a few years of general practice, or perhaps has only just graduated. The field that he occupies, or the one that he proposes to occupy, is one where he must play the rôle of the general practitioner in its widest sense.

To keep abreast of the times, he feels the necessity of further instruction, especially in the more practical matters that pertain to his profession. But in looking over his environments, two obstacles present themselves at the very outset. His means are limited and he can only spend a few months away from his field of labor. Where shall he put this time in, at home or abroad? Most decidedly at home, unless however there is a large element of fraud and humbug in his make-up, and he is seeking a very little knowledge and a good deal of buncombe.

Our post graduate schools at home were organized for just such men as he is, and they teach, in the main, just what he most needs to know. A couple of six weeks' courses at one of the best of these will be of more benefit to him than many months spent in a foreign country, where he has first to learn the language before he can profit by what he sees or hears.

Twenty odd years ago, when I first came to Vienna, the condition of things was entirely different. There was no postgraduate instruction to be gotten in the United States at that time, nor, in fact, anywhere else outside of the Austrian capital. In fact, two decades ago this was the acknowledged Mecca, to which all medical pilgrims turned their footsteps who were in search of a higher and more practical medical education.

Some years ago, after leaving here, I went to Guy's Hospital in London, and giving the late Dr. Reese my card asked the privilege of attending his lectures for a time. His reply was: "Yes, Doctor, you are perfectly welcome to attend my lectures, but if you have been taught clinical medicine by Jaksch and Nothnagel at Vienna, you will find anything in that line to be gotten here in London very thin." And thin I found it.

I am glad to say, however, that the number of young physicians from America who are coming to Vienna is gradually diminishing, and we have not more than half as many here now as there were twenty years ago. I believe though that part of this falling off in numbers is due to the fact that more Americans go to Berlin for instruction than in former years.

The private instruction given here is done by the ordinary professors and privat docents. In several branches this class of instructors is far inferior to those of a decade and a half ago. For instance, Bandl, who taught us in gynecology, and Ultzmann in the diseases of the genito-urinary organs in the male, are both dead, while Jaksch, Pawlik and Chiari have been called to fill professorships in the German University at Prague, and their places, in my opinion, have not been filled by men of equal merit as teachers.

Who should come to Germany, in which I include Austria, to pursue their post graduate studies in medicine, and what are some of the advantages to be obtained here? It is nonsense to come here unless you have some knowledge of the German language or intend to stay here long enough to acquire the same. An ordinary traveling knowledge of the language will be of but little benefit to you. You must know *medical* German, and that requires a good deal of time and study, as their technical terms are not like ours and the French, derived from the Greek and Latin, but are mostly strictly German in their origin. It will take from three to six months' diligent study to be able to thoroughly understand what you hear. If, however, you are not too far advanced in years and have a sufficient amount of money and time at your disposal, the benefits of a course of study abroad are certainly not to be ignored, for besides what you know of medicine proper, the acquisition of the knowledge of a foreign language is no small factor in the make-up of an all-around educated man, which every physician should strive to be.

Supposing you understand German, or intend to stay in Germany until you acquire such a knowledge, what are the subjects that are better taught here than at home! First comes internal medicine. Not because the subject is better understood or more skilfully taught than by our best teachers, but because the clinical material is much more abundant here and can be much better utilized for clinical purposes, and the numbers of those to be taught are much fewer in proportion to material available. If one takes Professor Nothnagel and his first assistant, you have thus access to a large number of patients whom you can personally examine, make your own diagnosis, and have it corrected or criticized by your teacher; hear many of these cases discussed fully by one of the best teachers in Europe and follow them to the dead-house, if they die, and observe all the morbid changes that an autopsy reveals. There may be just as good courses as these at home, but I have not been able to avail myself of them, for I have not been able to find them. In the post-graduate courses I have taken in America the teaching of internal medicine has been extremely disappointing, partly on account of its being simply didactic in character, no material being available to give it a true clinical worth.

Again, in the line of obstetrics, you take Professor Schauta's course and that of his first assistant, and these will enable you to watch the course of a large number of natural labors, and you can be called at any hour of the day or night to witness any operative cases that may occur. When we consider that three or four thousand women are delivered annually in this service you can form some idea of the rich field of observation that it gives. Besides this you can examine a large number of women in the last weeks of pregnancy, measure their pelves, and determine the position and presentation of the child before labor begins.

Where, I ask, would you be able to get advantages like these in the United States? The larger number of Americans here are studying some special subjects, as the eye, ear, nose, throat and the like, and the merits of Vienna as compared with other places for studying these subjects I can not judge, though I find that many get discouraged after remaining here for a short time and return to London or New York. Many of these men who are preparing themselves to play the rôle of specialists are youths just out of college. Few of them seem to be studying that which should be the ground work of a thorough medical education, viz., internal medicine.

For one who understands German, and especially if he has had a few years' practice, the best place to put in a couple of months in Europe is at Berlin, taking in the "Ferien Curs für Ärzte," which begins early in the Autumn and lasts six weeks.

Still, as I said in the beginning, such a course can be gotten in our own country at a much less expense and, taken as a whole, just as good. The exception to this is that the course in gynecology, given by Martin, is better than can be gotten in America, and I am certain that his brilliancy as an operator is not excelled, if equaled, anywhere or by anyone.

A large number of our young men in the profession are surgery mad, scalpel crazy and see nothing in any case that is not associated with the spilling of blood, the tying of arteries, the closing of abdominal wounds and the application of the model antiseptic dressing. To such I would say, do not come to Europe at all, for I can assure you that you can do much better in America. Here, in Vienna especially, operations seem to be done principally for the benefit of the ten or a dozen assistants who surround the patient.

Then again the teaching is not so good as one can get in New York or Chicago, and the operating is certainly in no way superior. Especially will you find both the medical and surgical gynecology disappointing as compared with what one can see at home if he will follow the work of our best men.

Many of the teachers here in the Vienna school seem to have achieved their positions through some other consideration than their natural ability to teach, as in the case of Bilroth, who was one of the most scientific surgeons of this century, but never was a good teacher.

Hence, of late years, when I am in Europe I go to Paris for my surgery; not that it is better done there than here in Vienna, but because the French professor in the school of medicine in Paris is generally a born teacher, explains every step of his operation and allows you, if possible, to see what is done. Then again American physicians are treated courteously in France, while in Germany, if you are not a Senn, a Murphy or some other man of equal eminence you are not likely to get any civilities that you do not pay for; in fact, they seem inclined to put us all down as the graduates of a Buchanan school or some other quack institution.

W. S. CALDWELL, M.D.

Medical Treatment of Appendicitis.

ONEIDA, N. Y., Jan 10, 1898.

To the Editor:—Much has been written of late years on the surgical treatment of appendicitis, but very little on the medical treatment. In a practice of nearly forty years I have had my share of cases, ranging from five to twenty yearly, and thus far have had no case that I have found it necessary to operate more than to aspirate in case of abscess. I have had only one death, a boy 15 years of age, who was hurt while playing at school, and this case, in my opinion, died from lack of good nursing.

My treatment can be given in brief. Although adopted more than thirty-five years ago, I have never witnessed another line of treatment that has caused me to change my own. Unfortunately, many physicians are not correct in their diagnosis, and frequently call peritonitis (especially if pelvic) appendicitis. It is true that the symptoms are in part alike. Both diseases are usually ushered in with a chill followed with fever and abnormal temperature, and my treatment is alike, or nearly so, in both diseases.

If called in the first stage, and there is much pain existing, I give a hypodermic of morphia and atropia, usually ¼ grain of the former and 1/150 of the latter. Ice-bags filled with chopped ice are applied over the seat of pain, and possibly followed after twenty-four or forty-eight hours with poultices, preferably of yeast and charcoal with a good quantity of nitrate of potassium added. The medical treatment consists of commencing at once with tinct. of aconite to control the fever and reduce inflammation, in ¼ minim doses repeated every two hours, and 1/120 grain of corrosive chlorid of mercury every hour, with a teaspoonful of olive- or castor-oil every two or three hours.

I have had cases where I have commenced with 15 to 20 grains of calomel, followed by the above treatment. In some very few cases an abscess has formed in the iliac region which I have aspirated, and then use compression. I have had cases where the abscess broke into the colon and the patient made a good recovery. About a year ago I was visiting in a city some seventy five miles west of Chicago, and I was told that only a short time before, a man of that city was seriously sick with what was called appendicitis, and a celebrated surgeon of Chicago was called and advised operation at once. This the family would not consent to, and in the evening an old lady came in and recommended giving the patient all he could drink of a tea made of timothy grass seed, and a huge poultice of the seed applied to abdomen. This was done and in less than twelve hours the man was better, and rapidly recovered. I tried the above in a case of a lady a few months ago, but feeling that it was unsafe to depend entirely upon this, I gave my usual treatment and she made an uneventful recovery.

H. W. CARPENTER, M.D.

The Antiseptic Versus the Antitoxin Treatment of Diphtheria.

PHILADELPHIA, PA., Jan. 10, 1898.

To the Editor:—I am not informed whether it is your custom to admit to your columns criticisms of papers appearing therein, but upon reading the paper of Dr. Braymer in the issue of November 27, I am tempted to test the facts in that direction. The point which the paper attempts to cover: "Is, or Is Not Antitoxin the Best Treatment Offered for the Cure of Diphtheria," is one that we supposed had been definitely settled through exhaustive clinical experience, covering a period of time sufficient, it would seem, to justify an affirmative answer in the minds of the most captious. On the contrary, like Banquo's ghost, the subject will not down, and following the usual experience in medical investigation, need we expect it to be set at rest for a century to come? Parallel cases may be cited to prove the likelihood of this prophecy; note the school of anti vaccinationists which flourishes in our own day. Indeed, we find that there is hardly a proposition advanced in any school, no matter how probable, but finds it's opponents for a large number of years to come. With the results of clinical theories, however, if the antitoxin treatment can be so called at this time, this communication is not intended to deal, but more particularly with the handling of those theories.

Dr. B. in his second paragraph states: "I have had very limited experience with the remedy, but as yet can not feel that it is worthy of the *advertising* [italics are ours] it has received at the hands of the profession."

In a list of some seventy-four cases, covering a period of years, the Doctor recounts six cases treated with antitoxin. The mortality during the first period under potassium chlorate, iron and calomel treatment, was in thirty-six cases, seven, or 22.22 per cent. During the second period, under antiseptics, there were thirty-two cases with *nil* mortality; and during the third period six cases with two deaths, 33⅓ per cent. This would apparently make a strong showing for the antiseptic treatment were it not for the important qualifying elements of character of epidemic, class of cases, etc. The importance of this is well stated in another portion of the paper: "All who have met with many cases of diphtheria know how different the fatality is." "You also know that there is the factor of varying vitality manifesting itself in different individuals." Continuing the Doctor says: "I believe all will agree with me that diphtheria is primarily a local disease, (!) then we ask the question, why not treat it as you would any other like condition, why not treat it successfully by antiseptic?" Why not, indeed? The bite of a rattlesnake, if such can be called a disease, is primarily local, but how long does it remain so? The same might be said for anthrax and tetanus, syphilis, gonorrhea, and in fact almost all contagious diseases.

In my student days it was the habit of an esteemed professor of surgery to give the class a literal and concise method of treatment for all surgical cases. "Take away the cause and put the part at rest." If this advice could be promptly followed in all cases, the practice of medicine and surgery would be a very simple affair.

If I may be allowed I will quote once more from the Doctor's paper and then conclude: "If antitoxin does any good at all it is only to counteract the effect of the absorbed toxin of the disease." "And those (cases) that have been of several days standing without treatment are admittedly not so much benefited by antitoxin, *perhaps* [italics mine] not more so than by any other rational treatment. Then again the use of antitoxin causes great pain and fright, especially in small children, and this alone might be a cause of death."

There are a few conclusions that I would draw from the reading of the paper. 1. That the Doctor greatly errs in ascribing to the profession generally, or individually, a lack of sincerity in the use of the antitoxin, or an intention to advance the interests of manufacturing houses in the advocacy of its use. 2. That after more insincerity is displayed in ill directed opposition to a remedy or the publication of incomplete collections of cases bearing on their face ample evidence of lack of careful analysis and detailed history.

W. H. BURR, M.D.

A Case of Puerperal Eclampsia (Ante Laborem) With Recovery.

PARK CITY, UTAH, Jan. 8, 1898.

To the Editor:—As there is a good deal of uncertainty in regard to the exact pathology and treatment of puerperal eclampsia, it would possibly throw more light on the management of this dreaded disease if the physicians reported every case in their practice and the line of treatment pursued; especially does this seem important when it is remembered that according to statistics the mortality is 40.5 per cent. if the convulsions set in before the time of labor and about 29 per cent. during labor.

Oct. 28, 1897, I was called on to prescribe for Mrs. S., age 22; pregnant about thirty-seven to thirty-eight weeks; primipara. She was troubled some with vomiting and complained of being very nervous and restless so that she could sleep but very little during the night; had quite a severe pain in the stomach and a good deal of headache. The urine was examined and found normal.

Anodynes were prescribed to quiet restlessness and also lithia water as a precaution, although no kidney lesions could be found. Her husband neglected to obtain the lithia water.

November 1, about 9 o'clock, P.M., I was sent for. Mrs. S. was in convulsions. On my arrival she had just passed out of the first convulsion and was snoring heavily. In about twenty minutes she had another severe one. A hypodermic injection of gr. ¼ morph. and gr. 1-150 atropin soon controlled it. There were no uterine contractions. A brisk cathartic was given.

She had during the night seven severe convulsions. She bit her tongue quite badly. The pulse at times went up to 122 per minute. The convulsions were held somewhat in check with morphin and atropin, and Norwood's tincture of veratrum viride. I bled her once by opening the median basilic vein of the right arm drawing about a quart of blood; this seemed to check the convulsions for a couple of hours.

As the convulsions toward morning increased in frequency, at 8 o'clock I decided to bring on labor. Under partial chloroform anesthesia, the cervix was gradually dilated by means of the Barnes bags and the fingers. At half past nine she was delivered of a dead baby. The placenta was removed after twenty minutes and the uterus contracted well. She had one convulsion during the manual dilatation of the cervix. About five hours after delivery she had another severe convulsion; this was the last, making in all nine convulsive attacks. She was unconscious to external surroundings and had no recollection of what had taken place from the first convulsive seizure and until about a day and a half after delivery.

During the puerperium the thermometer registered only once half a degree above normal. She was given lithia water and the bowels kept open every day. The wounds on the tongue were washed with antiseptics several times a day. The vagina was syringed three times a day with bichlorid of mercury solution. She made a splendid recovery.

E. Viko, M.D.

"A New Method of Inviting Sleep."

Northampton, Mass., Jan. 3, 1898.

To the Editor:—I hope a large number of the readers of the Journal will refer to the September 25 issue and examine the article on "A New Method of Inviting Sleep" and express their opinion of the principle therein contained.

Thinking obstructs sleep. Draw away from the centers of thought power to carry on muscular effort as there described, an equilibrium is established and the normal conditions of sleep exist.

It is not necessary to put in practice this method in order to pass judgment upon its claim as a scientific principle.

Will the many medical men interested in reducing our practical work to the normal basis give us through the Journal an estimate of this method?

I should personally be greatly pleased to receive through the mails any opinion at variance or in consonance with my own.

Respectfully, J. B. Learned, M.D.

One Way to Prevent Abuse of Medical Charity.

Chicago Eye, Ear, Nose and Throat College.

Chicago, Ill., Dec. 14, 1897.

To the Editor:—In the *N. Y. Medical Record* of November 27, is given a copy of a circular letter recently issued by the New York Cancer Hospital, which is sent to the family physician of all patients applying to their clinics for free treatment, in which inquiry is made as to the ability of the patient to pay. In all cases wherein it is learned that the patient is able to pay further clinical services are denied.

The same idea was adopted by the Chicago Eye, Ear, Nose and Throat College several months earlier as may be seen by appended copy of letter issued at the time of its organization, to every doctor in Cook County.

Would it not be just to place the credit for the idea where it belongs, and give us the precedence of having adopted a practical means for discouraging clinical pauperism?

Yours truly, J. R. Hoffman, M.D., Sec.

Chicago Eye, Ear, Nose and Throat College,
Chicago, Ill., March 26, 1897.

Dr.————

Dear Doctor:

M———— has applied to us for treatment as a charity patient, and has given your name as having been the former medical attendant. We have been led to suspect that this patient is not entirely unable to pay, and hence is not entitled to free treatment, which it is our aim to extend only to the worthy poor.

Do you consider the above mentioned patient as being one entitled to free treatment?———— We will consider this communication as strictly confidential. If not a worthy poor patient, will decline to extend further free treatment, and refer same to you. Yours very truly,

Chicago Eye, Ear, Nose and Throat College.

Confidential remarks.

Medical Law in Indiana.

Chicago, Jan. 10, 1898.

To the Editor:—Will you kindly give through the Journal the new or present medical law in Indiana, and oblige

A Subscriber.

New Indiana Law as to Practice of Medicine.—After the taking effect of the act approved March 8, 1897, any person desiring to begin the practice of medicine, surgery or obstetrics in Indiana, must procure from the State Board of Medical Registration and Examination a certificate that he is entitled to a license therefor. To do this, he must submit his diploma, and make affidavit of the time and under what circumstances he received it. Besides, the affidavits of two freeholders, resident in his county, stating that he is the person named in the diploma application for a certificate, must accompany the application. The fee is $6. All persons already practicing, are given ninety days to obtain a certificate, by presenting to the board the license possessed by them at the time of the passage of the law, with an affidavit that they are the legal possessors of the same, and the persons mentioned therein. The fee they must pay is $1. The board's certificate, when presented to the county clerk of the proper county, entitles the holder to a license to practice medicine, surgery and obstetrics in Indiana, on payment of 50 cents for issuing and recording it. If an applicant presents a diploma from a medical college which is not recognized as maintaining a sufficiently high grade or standard of medical education as defined and fixed in the records of the board, he is given the privilege of being examined as to his qualifications, in such manner as the board may provide, and if he fails once, may try again within twelve months. Fee, $25. An appeal also lies, on giving bond for costs, to the circuit or superior court, to require the board to show cause why he should not be permitted to practice. Change of residence from one county to another requires a new license, to be obtained by filing the old one with the county clerk of the latter county. The board is to be composed of five members, appointed by the Governor from reputable physicians of the State, graduates of a college of medicine of good repute. Each of the four schools or systems of medicine having the largest numerical representation in the State shall be represented on it, but not more than three members shall be of one political party. No professor or teacher in a medical college is eligible. Meetings shall be held on the second Tuesday in January, April, July and October of each year, at least. Schedules of the requirements made of applicants for examination, and of medical colleges, must be kept, and, after 1897, no change shall be made therein after the month of January of each year or affect students theretofore matriculated. The board is not to discriminate for or against any school or system of medicine, or prescribe which shall be taught in State institutions. But it shall have power to make all necessary rules and regulations for reciprocal recognition of certificates issued by other States, and to prevent unjust and arbitrary exclusiveness by other States of Indiana graduates who have filled its requirements. It may refuse to grant a certificate to any person guilty of felony or gross immorality, or addicted to the liquor or drug habit to such a degree as to render him unfit to practice medicine or surgery, and may, after notice, hearing and judgment of "guilty" thereon by the judge of the circuit court, revoke a certificate for like cause, subject to appeal. Midwives of ten years' practice are also allowed to procure certificates, within ninety days, on affidavits. Others must present diplomas from a recognized obstetric school, or pass an examination. Nothing in the act is to prevent rendering services in emergencies or administration of family remedies. Neither is it to apply to any commissioned officer of the United States army, navy or marine-hospital service in the discharge of his duties; nor to any physician or surgeon, who is legally qualified to practice in the State or Territory in which he resides, when in actual consultation with a legal practitioner of Indiana; nor to any physician or surgeon residing on the border of a neighboring State and duly authorized to practice under the laws thereof, whose practice extends into Indiana, provided, he shall not open an office or appoint a place to meet patients or receive calls in Indiana. It is further provided that this act shall not be construed to prevent medical students from practicing medicine and surgery under the immediate supervision of a licensed physician; nor shall it apply to legally qualified dentists when engaged in the exclusive practice of dentistry; nor to any optician who shall hereafter engage in the practice of optometry; nor to non-itinerant opticians engaged in the practice of optometry in Indiana at the time and prior to the passage of this act. To open an office for such purpose or to announce to the public in any way a readiness to practice medicine in any county in Indiana, or to prescribe for, or to give surgical assistance to those suffering from disease, injury or deformity, shall be to engage in the practice of medicine within the meaning of this act. Any person who shall practice medicine, surgery or obstetrics in Indiana, without having a license duly issued as provided therefor, shall be deemed guilty of a misdemeanor, and on conviction thereof shall be fined not less than $25 nor more than $200.

"One Dr. Eastman."

INDIANAPOLIS, IND., Jan. 6, 1898.

To the Editor:—In the issue of the JOURNAL for December 25, Dr. M. Price of Philadelphia, discussing extra-uterine pregnancy, observes: "My case at term, reported some five years ago, was in the tenth month of gestation and in the amniotic sac. The mother and child are today both living and well, the child a beautiful little girl. This case is reported in 'Greig Smith's system of Abdominal Surgery' as operated by one Dr. Eastman. No one of the name is known to belong to the profession of Philadelphia. This goes to illustrate the worthless character of the statistics of even eminent authority. This case is stated by Smith to be the only one in America where mother and child both lived." At the outset we will disclaim any intention to champion the accuracy of Greig Smith's statistics, since indeed a typographic error in the volume referred to made it appear that "Eastman of Philadelphia" (*instead of Eastman of Indianapolis*) had operated in tubal pregnancy, saving mother and child. But because of this single error, shall Dr. M. Price conclude recklessly, "my operation has been credited to one Dr. Eastman?" We think not. In the statistic assailed the words "Eastman of Philadelphia," were marked by an obelisk which it was intended should refer attention to a foot-note at the bottom of the page, giving the *American Journal of Obstetrics* of October, 1888, as the source of the operation of "one Eastman." It is passing strange that Dr. M. Price did not remark this date, 1888. Why did he not take up his *American Journal of Obstetrics* and learn to whom Greig Smith alluded? Dr. Price says, "my case was reported some five years ago." According to his own statement, therefore, not earlier than 1892. The case of Dr. Joseph Eastman of Indianapolis, is recounted in nearly all of the standard text-books dealing with such matter, which have appeared since July 10, 1887, the date of his operation (Playfair, Greig Smith, Pozzi, Keating and Coe, etc.), and has been discussed in French, German and English magazines. In all instances except one (Greig Smith's work) this particular operation has been ascribed to Dr. Joseph Eastman of Indianapolis. Dr. Price in including the case among his own, indeed "illustrates the worthless character of the statistics of even eminent authority." Many of the works (notably that of Greig Smith, 1889) and magazine articles referred to were published several years before the confessed date of Dr. Price's operation.

We assume, with no thought to commentate concerning the scope of Dr. Price's reading, that none of these have come to his notice. It remains to be added that the method employed in the two operations controverted was essentially different. Dr. Price left the amniotic sac stitched to the wound and placenta *in situ*; whereas Dr. Eastman removed the entire sac, clamped the uterine end of the tube and the broad ligament, cut away the portion which contained the ovum and quilted the stump with iron-dyed silk.

JOSEPH RILUS EASTMAN, M.D.

License in Germany; American and European Medical Colleges.

CHICAGO, ILL., Jan. 10, 1898.

To the Editor:—I am again forced to reply to Dr. Becker of Toledo, and this time on a different subject. I must therefore apologize for using two headings for this communication.

As far as the laws regulating the practice of medicine in Germany are concerned, I am done and shall waste no more time with them.

But Dr. Becker accuses me of underrating the value of American medical colleges, particularly of Johns Hopkins or Harvard. Now any careful reader, familiar with the most rudimentary principles of English composition, will see that I *never expressed my opinion*, but that I was stating what *legal* value the diplomas of an American medical school has before the German licensing board in Germany.

My opinion puts Johns Hopkins and Harvard even above the average German university. To me Osler is second to none, and Kelly far outshines, as a surgeon, men of even the caliber of a Bergmann, which gentleman, for instance, although one of *the* German surgeons, has won for himself the distinction of carefully neglecting asepsis.

And now to the address of Dr. Becker a few well-meant advices: 1. "Polk's Directory" is a poor weapon to fight with, as it is not a scientific publication. 2. It is not considered good journalism to indulge in personalities. Stick to the subject in consideration, Doctor, and do not argue about a man's shoes and clothing, or his nose; babies only argue in this way. 3. Barnes Medical College is an excellent institution, and has men on the faculty who are far more able to teach than many professors in Zurich. So, for instance, Charles H. Hughes is well known throughout this country and Europe as an authority in neurology, Pinckney French as a most successful scientific and aseptic surgeon, Carpenter as a clinical lecturer of whom it has been justly said, "he is a clinical lecturer even if without clinical material."

Perhaps Dr. Becker will be surprised to learn that his diploma from Zurich is *absolutely valueless* in several States of the Union, as Kentucky, Tennessee, and that in order to practice medicine there he would have first to produce an American diploma. If he ever wished to move there, I would earnestly advise him to enter the graduating class of Barnes Medical College. I believe the faculty of that institution would give him three years credit for his diploma, and I am satisfied that he could yet learn something in that successful college, which in its six years existence had to abandon quarters for more spacious ones, larger than those assigned to the medical department of the University of Zurich.

G. A. BLECH, M.D.

A Simple Method of Preventing the Clouding of Mirrors.

MILWAUKEE, WIS., 1897.

To the Editor:—The *Medical Press and Circular* recently called attention to an ingenious, effective, and at the same time very simple device for preventing the clouding of mirrors used in the work of laryngologists and dentists.

The method was introduced by George Wallis, L. D. S., dental surgeon to the London Throat and Ear Hospital at a recent meeting of the staff.

It consists merely of smearing a thin layer of ordinary soap, soft but not moist, over the surface of the mirror, and afterward polishing the latter with a dry cloth. The effect of this procedure is that however much the mirror may be breathed upon, its reflecting surface remains perfectly clear and bright. When one takes into consideration the extreme simplicity of the procedure and the bothersome difficulties sometimes encountered in preventing the clouding of mirrors used in laryngology and dentistry, the value of this ready method can not be overestimated. It has proved very satisfactory to me, and as I have not yet seen it mentioned in the American journals, I take this opportunity of calling the attention of the profession to it.

Yours very truly,

GILBERT E. SEAMAN, M.D.

Birth Mark?

WAUKEGAN, ILL., Jan. 6, 1898.

To the Editor:—J. F. M. is 13 years old, and is usually in good health. He is myopic and his eyes are elongated antero-posteriorly. The pupils are exactly alike, ellipto oval in shape, the pointed portion of the pupil being downward like a snake's eye. The mother thinks the boy is "marked." While she was pregnant, a few months before his birth, she was frightened by a snake and for weeks afterward she fancied she could see that snake's eyes.

Is the boy "marked"? Respectfully,
J. M. G. Carter, M.D.

PUBLIC HEALTH.

Reappearance of the Plague in Bombay.—Bombay dispatches of January 6 give the plague returns for the preceding forty-eight hours, 142 new cases and 105 deaths. There is a general exodus of the population and a suspension of business threatened.

Appointments.—Mr. Nathan Straus, of sterilized-milk fame, has been appointed president of the Board of Health of the City of New York, *vice* Mr. Wilson. Dr. Wm. T. Jenkins and Dr. John B. Cosby have been appointed health commissioners. Dr. Jenkins brings to his new office the experience gained as former health officer of the port.

Health in Michigan.—Reports to the State Board of Health for December give the ten diseases most prevalent as: Rheumatism, neuralgia, bronchitis, influenza, tonsillitis, diarrhea, inflammation of kidney, pneumonia, pleuritis and erysipelas. Consumption was reported at 178 places; diphtheria, 85; typhoid fever, 84; scarlet fever, 72; measles, 56, and whooping cough at 20 places, there being an increase in consumption, diphtheria, scarlet fever, measles and whooping cough and a decrease in typhoid fever, as compared to the report for November.

The Pilgrimage to Mecca was accomplished this year in remarkably good sanitary conditions. Notwithstanding the 200,000 pilgrims gathered during the four days of the festival, not a single case of the bubonic plague nor of cholera was discovered, thanks to the action of the Anglo-Indian government in prohibiting the departure of pilgrims from the infected Indian ports. But twenty days after the close of the festival, the bubonic plague appeared at Djeddah, the nearest port to Mecca. Prompt measures in accordance with the program adopted by the International Conference at Venice, and the extreme heat, stamped out the epidemic by July, with a record of only fifty-eight deaths. It was undoubtedly due to the contraband trade in goods and transportation between India and Arabia, which will continue to be a menace to the health of Europe until suppressed by concerted action.—*Janus*, October.

Good Health at Pittsburg, Pa.—The annual report of the Board of Health of Pittsburg, for 1896 has recently been issued. The report shows the number of deaths to have been 4,907 or 17.3 per thousand of population (estimated at 282,500). The death rate is lower than at any time since 1886; and considerably lower than in 1891, when it was 23.6. The number of infants born during the year was 7,462, being an increase of 709 over the previous year. The births exceeded the deaths by 2,555. The Board makes bacteriologic tests in cases of suspected diphtheria and furnishes antitoxin, produced by the bacteriologist of the department, Dr. Matson, free of charge for physicians of Pittsburg, and adjacent districts. The report shows that 1,216 doses of antitoxin serum were distributed last year, 220 of these going outside of Pittsburg. Mr. Matson is of the opinion that the fatal cases of diphtheria were reduced one-half by the use of antitoxin last year. The disposal of garbage is satisfactory. The city has as yet no municipal hospital for contagious diseases. The health officers, as in duty bound, repeat the recommendation made in former years that one be established without delay. Let them not cease the necessary reiteration until they get it, for get it they will and must.

Neglect of Vaccination in Northern London.—The *Lancet* says that if Islington is again overtaken by one of those great epidemics of smallpox which have affected it more than once in the last twenty-seven years it will not be the fault of its indefatigable medical officer of health, Mr. Alfred E. Harris. Mr. Harris has just published some statistics which may well alarm that public of this great parish. These figures show that there has been a steady increase in the neglect of vaccination during the last twelve years, so that, whereas in 1885 of 9,683 children born, only 8 per cent. were finally unaccounted for, in 1896 of 9,752 children born no less than 22.4 per cent. are unaccounted for. Such wholesale violation of law is doubtless the fault of the guardians more than of the inhabitants. It is nothing short of a scandal that a board of guardians should override the wisdom of the legislature. The vestry of Islington has very properly protested against the guardians being in this matter the sanitary authority. One thing, however, is clear, that if at the approaching election of guardians this question is not put into the very front of those on which the election will turn the inhabitants will then become responsible for the unprotected state of the children, and for general treason to the teachings of science and of common observation.

Sanitary Care of Canned Foods.—Dr. T. Brown, at the Sanitary Congress at Leeds, avowed himself to be a strong advocate of legislation in the matter of canned foods. In regard to tinned fruits Dr. Brown said he had not heard of any case which had ended fatally. He had, however, made numerous analyses showing that in cans in which lead was used in tinning or soldering, the former metal was found in the fruits and syrup. How long foods hermetically sealed would keep was not definitely known. Having had canned foods, including meats, soups, rabbits, giblets, and oysters from twenty to thirty years, he had found that the tins, though rusty outside, were perfectly good inside. The meats were sound, though not as fresh and tempting to the eye as recently prepared samples. In canned fruits, however, the effect of age was that the acids of the fruits dissolved, by chemic and galvanic action, the plating and solder with disastrous consequences. To safeguard the public health, Dr. Brown recommended the government to forbid tinned foods in which tin used for plating contained more than 1 per cent. of lead or more than 10 per cent. in solder, the same law in fact which had been in force in Germany since 1889.

Relations between Medical Examiners and local Boards of Health.—Dr. Hurd, medical examiner at Newburyport, Mass., refers to a case of sudden death regarding the disposition of which there happened to arise a clashing of authority, and the courts were called upon to arbitrate between the two authorities. Dr. Hurd thus writes to the *Boston Medical and Surgical Journal*, for December 16, regarding the discrepancy and its settlement: "This is the case where the Board of Health of Ipswich, thinking their rights interfered with by the removal of this body to Newburyport (that is, from one town to an adjoining town) without their permission, and believing that the law defining the functions of boards of health gives such boards authority over medical examiners in such cases, who must apply to these boards for consent before they can legally remove bodies out of one town into another—this board, I say, appealed to Justice Sayward, of Ipswich, who sustained the view of the board, and fined the undertaker who took the body from Grape Island to Newburyport, $10 and costs. An appeal was made to the superior court, and the case was *nolle prossed* by District Attorney White, so that, according to this judgment, medical examiners are not amenable to boards of health in the discharge of their duties within the limits of their districts."

Sanitary Regulations as to the Plague in South Eastern India.—Plague is increasing in India. It is feared that it will break out somewhere in an epidemic form, and the necessity for active intervention occur. A recent telegram from Madras, reported: "Three fresh cases, one has terminated fatally." "The appearance of the plague," says the *British Medical Journal*, "at Madras is interesting epidemiologically, as we have no previous record of plague there. The cases, as far as we can learn, are important cases merely and in accordance with what we now know of plague we should not anticipate an outbreak there in an epidemic form. A telegram from Jullundur, a town in the Punjab, states that twenty-three deaths have occurred there 'from what is believed to be the plague.' Jullundur is directly in the track northward from Bombay of the course the plague has followed previously. In the hospitals at Poonah, 294 cases of the plague are being treated, and the physicians are attending 115 cases in Bombay hospitals. Whilst Poonah is relaxing her efforts by as far as possible annulling the severe segregation rules enforced when the plague first appeared, Bombay is strengthening hers by imposing quarantine upon new arrivals. The period of detention will extend to six days, and accommodation will be provided for about 6,000 people. With the quarantine arrangements surveillance tickets are issued, whereby well-known people can avoid the quarantine on the understanding that they present themselves for examination on the third and sixth days after arrival. As well-nigh a third of the cases occurring in Bombay are imported, these regulations have shown excellent results. The inspection is rigid, and no person passed out has been known to have become subsequently attacked."

The Ship Island Quarantine.—The resolution recently introduced in the United States Senate by Senator Walthall of Mississippi, instructing the Committee on Health and Quarantine to investigate by what right the Quarantine Station, which was removed some years ago from Ship Island, off the Mississippi coast to Chandeleur Island, had been returned to Ship Island, will receive general indorsement in this section. The resolution further instructed the committee to report, by bill or otherwise, the proper measure for removing the station from Ship Island to some other point in the Gulf remote from the mainland. This resolution undoubtedly voices the wishes of the people of the whole tier of States bordering on the Gulf of Mexico. Ship Island is not a fit place for a quarantine station, for the reason that it is too close to the mainland, and is in daily communication with all the towns along the coast, because a large amount of traffic goes on constantly between the ships taking in cargo at the island and the mainland; and lastly, because fishermen and pleasure-seekers are frequent visitors to the island. A quarantine so situated can not but be dangerous to the health of the watering places along the Gulf Coast, and through them to the neighboring cities of Mobile and New Orleans. There is a very grave suspicion that the recent visitation of yellow fever came through Ship Island. At any rate, it first made its appearance at Ocean Springs, which is but twelve miles from the island. No matter how strongly the Government officials may claim that the quarantine plant at Ship Island is not dangerous to the health of the people residing on the mainland, it should nevertheless be removed, as it is unwise to take any chances in matters affecting the public health. Moreover, the people of the coast towns firmly believe that the Ship Island Quarantine Station is a menace to them, and its perpetuation would materially retard their prosperity. It was a great error to have re-established it on Ship Island after it had once been removed from there, and Congress should promptly provide for its transfer to some more isolated place. Chandeleur Island is not a pleasant place of residence for the quarantine officials, but that is not to be considered in comparison with the safety of the entire Gulf coast.—Editorial in New Orleans *Picayune*, Dec. 16, 1897.

Inadequate Organization of Boards of Health Disclosed by the Yellow Fever Epidemic.—In proportion as the organization of sanitary boards is made complete and satisfactory, the panicky feeling in our epidemic-struck communities declines. The weak points in State and local boards are emphasized by such outbreaks of yellow fever as have visited our Gulf Coast, this year. A writer in the New Orleans *Medical and Surgical Journal*, November, alludes to the panic that has affected the Louisiana parish in which he lives, adding "and as is usual where there has been extreme fright, there has been almost complete absence of common sense in the exercise of powers conferred by law. Every neighborhood is suspicious of all other places; each municipality has enacted laws to protect itself without due regard to the rights of others, and in most instances very much more stringent than the situation demands. I suppose there are today, in the State of Louisiana alone, over five hundred local boards of health, each a law unto itself, and without the least attempt at uniformity or co-operation for securing protection against the yellow fever. The Board of Health of Louisiana, as at present created, serves an excellent purpose as far as the City of New Orleans is concerned, but in an emergency of this kind is of but little benefit to the State at large. I believe if a general law was passed, excessive and unwise quarantines, such as New Orleans and the entire State are suffering from now, would be impossible in the future. My suggestion is that the State Board of Health be composed, as at present, with the same number of members from the city of New Orleans, and also have a number from each parish in the State and one from each town of certain population. The Board should have its domicile at the State Capitol, and should hold annual meetings for discussing such questions as might come up of interest to the public health; in fact this board should take charge of the public health of the State in its broadest sense. Each member from a parish or town ought to be the regularly appointed health officer for that parish or town and, acting under rules adopted by the State Board, should take charge of all quarantines during an outbreak of any epidemic, or infectious disease. He should at all times look after the health of his parish or town, register births, deaths, etc. If some law of this kind could be passed and all laws repealed giving police juries and corporations power to form themselves into boards of health, I believe the end of shotgun quarantine would be at hand, while the public health would be more thoroughly protected than it is now; the embargo on freight, as far as this State is concerned, would not be necessary. Confidence among the people in a board of health of this kind, I believe, would soon be acquired, and no one would wish to go back to the primitive methods of complete isolation to prevent the spread of disease."—James Kilbourne, Clinton, La.

BOOK NOTICES.

Clinical Text Book of Surgical Diagnosis and Treatment. By J. W. MACDONALD, M.D. Professor of the Practice of Surgery and Clinical Surgery in Hamline University, Minneapolis. 328 illustrations, pp. 798. Philadelphia: W. P. Saunders. From W. T. Keener, Agt. 52 Randolph Street, Chicago. Price in cloth, $5.00, half morocco, $6.00.

This book might, with advantage, be compressed into two-thirds its size as it is verbose in its expressions, and the art of condensation, so far as the author is concerned, is a lost art.

The author's ideas are a little foggy in respect to tumors page 561, "Fibro-myomata and Fibromata." "Between the simple gelatinoid polypus and the true fibroma may be found mixed tumors of all grades, from those containing the slightest trace of fibrous material to those difficult to differentiate from the true fibroid; the gravity of the case varies in proportion to the amount of fibrous substance, because that is very vascular, and the chief danger of removal lies in the hemorrhage."

Page 563: "Adenomata and cysts are to be regarded as modifications of mucous polypi, with similar symptoms and treatment, though the former may take on the characteristics of carcinoma and the latter do not tend to recur when once their contents are evacuated."

Page 667: "Psammomata are warts found only in the pia mater of the brain and spinal cord."

We notice on page 598, that the old student's lamp is introduced as a means of examining the larynx; in these days of gas and electricity, the student's lamp has not only ceased to shine in most offices but the electric head light has superseded the one here figured.

There are some funny errors in the text. We notice on page 579, in speaking of the deviated septum, he says: "One of the early proposed methods was that of "*Adanus*." Adanus we suppose must be the new way of spelling Adams.

There are some errors of statement; for instance, on page 241 the author says: "In the following table I have tried to place, side by side, the diagnostic difference in the three forms of obstruction;" and then under the first heading, "Strangulation by bands," we find that this is confined to "young males." Our personal experience is entirely contrary to this proposition, as we have repeatedly found these bands in young women, especially in cases that had been subject to former operation, and we believe it will be found, by most surgeons, that there is practically no difference in the relative frequency of strangulation by bands in one sex or the other. There are many good points in the work, which concludes with a chapter on the X-ray and surgical diagnosis.

Hugh Wynne, Free Quaker. Sometime Brevet Lieutenant Colonel on the Staff of his Excellency, General Washington. By S. Weir Mitchell, M.D., LL.D. (Harvard and Edinburgh.) Two volumes. New York: The Century Company. 1897.

From the days of "Ivanhoe," "Thaddeus of Warsaw," and "Leather Stocking" down to the present time, the historic novel has always been a favorite.

This book should be a favorite with physicians on account of the fact that it was written by one of the guild, so well written indeed that it is destined to take rank with the leading favorites of the past, and it seems at last as if the present generation would have, in the person of Dr. Mitchell, an American novelist worthy of the name.

This story is laid in the times of Washington and inside glimpses are given of early Quaker life in Philadelphia, and the names familiar to us in history are handled as familiar contemporary characters. The work ranks well as a novel and the reader's interest does not flag from beginning to end. Moreover, there is a certain charm in reading a story about which one knows, in a general way, the subsequent history of the principal characters of whom he is reading; and if in addition there is knack in telling the story, interest is all the deeper. "Hugh Wynne" is a book to be read with pleasure by American physicians and laymen alike, and most interesting is the account of life in the Philadelphia prison during the British occupancy of the city. Dr. Mitchell has scored another success.

Ambroise Pare and His Times, 1510-1590. By Stephen Paget. New York and London: G. P. Putnam's Sons; Knickerbocker Press. 1897.

The *fin de siècle* seems to be the age of reminiscences in historic matters, and medicine is feeling the effect of this wave of reminiscence. Last week we chronicled the appearance of two works, John Hunter and William Harvey, and here we record the appearance of a story of Ambroise Paré, newly told in English dress. The life of no surgeon has been more romantic, more full of adventure or of excellent professional work than that of Ambroise Paré, and heretofore there has been but little of it in the English except in scattered volumes, and Mr. Paget has placed the profession in his debt by reaccounting the details of his life.

The volume gives his boyhood and early life and his journeys in diverse places: notes of the journeys in diverse places; Paris from 1541 to 1572; Paris from 1573 to 1590; opera omnia; some aspects of Paré's life, and Paré's account of the plague.

There are some fine illustrations which the reader will find of interest, especially the frontispiece, which is a reproduction of a portrait in the possession of Mme. La Marquise Le Charron, a descendant of one of Paré's daughters and which was painted when he was 65 years old, with a *fac-simile* of Paré's signature written across it. The other illustrations in the work are reprints from Paré's books, from old prints in the British Museum and from M. Martial's "Ancien Paris."

A System of Medicine by Many Writers. Edited by Thomas Clifford Allbutt, Professor of Physic in the University of Cambridge, etc. Pages 1001. New York: The MacMillan Company, 66 Fifth Ave. 1897. Price $5.

This volume covers some topics which have not been provided for in the preceding volumes and scarcely provided for in the nomenclature. "General diseases of obscure causation," is the rather unscientific title of one of the chapters, under which head is included discussion on acute rheumatism, chronic muscular rheumatism, rheumatoid arthritis, rickets, acromegaly, hypertrophic pulmonary osteo-arthropathy, gout, diabetes mellitus, diabetes insipidus, lardaceous diseases, diseases of alimentation and secretion, including general pathology of digestion and secretion, shock and collapse; diseases of the mouth and esophagus, diseases of the stomach, diaphragmatic hernia, abdominal diagnosis from the gynecologic standpoint, enteroptosis, diseases of the peritoneum, diseases of the bowels. There are twenty-three illustrations, a plate and various charts and bibliographic references. The volume is quite up to date in its discussions on the treatment recommended. Drs. Church, Cheadle, Archibald Garrod, Kent Spender, Still, Ralfe, Mr. Bowlby, Sir William Roberts, Drs. Saundby, W. L. Dickinson, Fenwick, Bradford, Cobbett, Rolleson, Brunton, Stocker, Allbutt, Dreschfeld, White, Howship Dickinson, Leith, Playfair, Mr. Treves, Drs. Allchin, Eustace Smith, Patrick Manson, Willis and Allingham are the contributors to the volume.

Rubaiyat of Doc Sifers. By James Whitcomb Riley. Illustrated by C. M. Relyea. New York: The Century Company. 1897.

This is a poem by James Whitcomb Riley, in which the life of "Doc Sifers," an ideal country doctor, is fully set forth in the dialect of Hooppole Township, Posey County. The Doctor's virtues are set forth in such fashion that one can not but love and esteem the old country practitioner. Riley depicts him, as follows:

"He's jes a child's what Sifers is! And sir I'd ruther see,
That happy, childish face o' his and puore simplicity,
Than any shape, er style er plan o' mortals otherwise——
With perfect faith in God and man a-shining in his eyes."

Mr. Riley makes the rustic worshiper of Doc Sifers speak thus of his library.

"Doc's lib'ry—as he calls it—yes, they's ha'f-a-dozen she'ves,
Jam full o' books—I couldn't tell how many—count yourse'ves!
One whole shef's works on medicine! And most the rest's about
First Settlement, and Indians in here—'fore we driv 'em out."

Text Book of Materia Medica for Nurses. Compiled by Lavina L. Dock, graduate of Bellevue Training School for Nurses. Third Edition, revised and enlarged. New York and London: G. P. Putnam's Sons. 1897.

Much in these days is expected of the trained nurse, and her training includes lectures on surgery and materia medica as well as on the subjects supposed to be within her peculiar province. The contents of the volume are as follows:

Part 1. Inorganic materia medica; the alkalies; of alkaline earth; metals; non-metallic elements; inorganic acids; organic acids; the carbon compounds.

Part 2. The organic materia medica; the vegetable kingdom; the animal kingdom; new drugs arranged alphabetically; appendix; index.

Diseases of the Stomach, their Special Pathology, Diagnosis and Treatment, *with Sections on Anatomy, Physiology, Analysis of Stomach Contents, Dietetics, Surgery of the Stomach, Etc.;* in three parts. By JOHN C. HEMMETER, M.D., PH.D., with many original illustrations, a number of which are in color, and a lithograph frontispiece. Pp. 788. Philadelphia: P. Blakiston, Son & Company. 1897. Price $6.

The work is divided into three parts, of which part first is devoted to the anatomy and physiolgy of the digestive organs, methods and technics of diagnosis; Part 2, to the therapy and materia medica of stomach diseases; Part 3, to the gastric clinic.

The work is completely scientific, modern, accurate and creditable. There is one defect in it, however, which must strike the average reader with regret, and that is that the references are, with exceptions, foreign; work done in our own country escapes with scant mention. For example, under the head of foreign bodies in the stomach, a number of cases of hair ball are recorded all from foreign journals, while the one published in this journal (Vol. xxvi, page 199) by Allen, is unnoticed. Notwithstanding this defect, the book is an excellent one and stands fully abreast with the German works on this subject. We commend it. The illustrations are excellent, the paper is good and the publishers have given the work a handsome setting.

NECROLOGY.

JOSEPH O'DWYER, M.D., College of Physicians and Surgeons, N. Y., 1866, one of the visiting physicians of the New York Foundling Hospital, died of tubercular meningitis at his home in New York city, January 7, aged 55 years. Twelve years ago he achieved even international fame by his intubation method of treating laryngeal diphtheria. He was a progressive, enthusiastic physician, in much favor with the profession for his candid and kindly manner.

EDWARD L. DODGE, M.D., N. Y. University Medical College, 1888, died suddenly from blood poisoning following an operation, January 3, aged 39 years. He was born in Springfield, Mass., and practiced in Brooklyn, N. Y. for 12 years. Just before his death he had secured a position on the eligible list of Police Surgeons.

FRANZ HEUEL, M.D., N. Y. Medical College (now extinct), 1857, who belonged to the German revolutionary army of 1848, and emigrated to this country after its defeat, died in New York city, January 4. He was once attached to the Health Department, and also served as a Dispensary physician. He leaves two sons who are also members of the profession.

SAMUEL HENDERSON MCILROY, M.D., Long Island College Hospital, 1864, was a war veteran, member of the Grand Army of the Republic, a Fellow of the N. Y. State Medical and AMERICAN MEDICAL ASSOCIATION, and belonged to many fraternal bodies. He was born, June 21, 1839, in Scotland, Pennsylvania, not far from the Gettysburg battle field. He was a popular, well-read physician, and up to within a year of his death, when his health failed, he enjoyed a lucrative practice. He died January 5 and left a widow with three children.

ERNEST HART, Editor of the *British Medical Journal.* Mr. Hart was the author of a number of works on sanitation, etc., and had been conspicuous for his devotion to social and sanitary progress in London. He established a society for the abatement of smoke, and instituted cheap concerts for the poor. As chairman of the Parliamentary Bills Committee of the British Medical Association he took an active part in promoting a better organization of the medical departments of the British army and navy. Among sanitary investigations he especially inquired into the various epidemics due to the pollution of milk and devised a series of regulations for safeguarding the milk supply of towns. After investigating the conditions of the Irish peasantry in Galway, Donegal, and Mayo he published in the *Fortnightly Review* proposals for favoring the creation of a peasant proprietary and for reclaiming waste lands. These were adopted by the government.

WILLIAM SCOTT TREMAINE, M.D., U. S. A., retired, died Sunday Jan. 9. He had been ill for several weeks. He was a native of Charlottetown, Prince Edward Island, where he was born Sept. 13, 1838. He was graduated from the University of Pennsylvania, and entered on the practice of medicine, which he followed until Aug. 7, 1863, when he entered the volunteer service as assistant surgeon of the 24th Massachusetts Infantry, serving until April 12, 1864, when he was honorably mustered out. On May 2 he was commissioned surgeon of the 31st United States Infantry, from which he resigned Sept. 9. He then entered the United States Volunteers as assistant surgeon and on June 4, 1866, was honorably mustered out, having been appointed to a like position in the regular army. This appointment was made Feb. 28, 1866, but he did not accept until June 12, eight days after he was mustered out of the volunteer service. On September 16, he was promoted to the rank of Captain. He served on several stations in the Atlantic division, and then was sent to Ft. Dodge. While there he was taken ill, and for two years was absent on sick-leave. In 1882 he was promoted to surgeon, with the rank of Major, and detailed for active duty at Fort Porter. On Feb. 27, 1891, he was retired owing to disability, after having been on sick-leave for some time. He leaves a widow and six children, Morris Tremaine of New York city, William Tremaine of Chicago, Mrs. H. F. Hall of Jersey City, Mrs. Nairn Walsh and Miss Florence Tremaine of Pittsburg, and Miss Grace Tremaine, who lived with her parents in this city. Dr. Tremaine was one of the founders of the Medical Department of Niagara University, and one of its first professors of surgery. He was a member of the military order of the Loyal Legion, which is composed of commissioned officers of the Civil War, or their eldest sons; of the Masonic Order, of the Buffalo Club and the local medical societies.

Louis Crusius, M.D., Professor of Histology at the Marion-Sims Medical College, January 2, aged 36 years.——L. B. Lindsay, M.D., Cadiz, Kentucky, January 3, aged 71 years. ——W. H. Negley, M.D., Dayton, Ohio, January 5.——James Stanton, M.D., San Francisco, Cal., December 28.——Dr. Zaccharin, physician of Czar Alexander III., Moscow, Russia.——John R. Preston, M.D., born February 15, 1809, died in Schuylerville, N. Y., January 2.

NEW INSTRUMENTS.

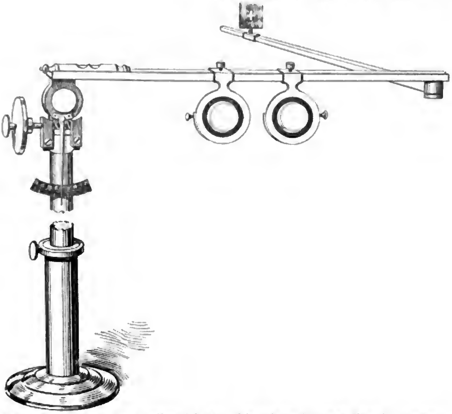
A NEW PHOROMETER.

BY JOHN O. MCREYNOLDS, B.SC., M.D.
DALLAS, TEXAS.

In the department of ophthalmology no line of research in recent years has attracted so much attention as that pertaining to the extrinsic muscles of the eye. And in view of this rapidly growing importance of an accurate knowledge of the various anomalies of the ocular muscles, it becomes necessary to employ as aids in diagnosis instruments of the greatest precision and convenient of manipulation. This demand has been met in part by several devices invented for this purpose, but some of the best of these in frequent use have covered only a portion of the field of inquiry. Without offering any extended criticism on the very excellent instruments already introduced, I should like to present to the profession a phorometer, which in my judgment will combine every essential feature that could with reason be desired.

This instrument has been made for me by F. A. Hardy & Co. of Chicago, and their kind co-operation I wish sincerely to acknowledge in this connection.

The construction is roughly outlined in the illustration which accompanies the following brief description of the essential features of the phorometer. The instrument rests upon a loaded metal base which can be placed upon a table as conveniently as if it were an ordinary lamp. It is supported by a vertical metal rod composed of two pieces, one of which slides within the other, and is provided with a fixation thumb screw, by means of which the height of the instrument can be regulated according to the height of the patient to be examined. Attached to the upper extremity of this supporting rod is a horizontal metal bar, which can be maintained in correct position by means of an endless screw bearing upon a cogged wheel, the position of the bar being determined by a spirit level, with which it is provided. The preservation of this horizontal position is important, because any oblique position would modify the axes of the prisms employed. The horizontal bar is grooved, for the reception of two entirely similar slides which are situated beneath the bar, and along which they can be made to move freely, or can be firmly secured at any point by fixation thumb-screws arranged for this purpose. This feature enables us to regulate the phorometer according to the pupillary distance of the patient. Each slide is also provided with a specially constructed spring clip, which will hold in position a Maddox rod double prisms, colored and stenopeic discs, or various refracting lenses.



But most important of all, each slide carries a cell which can be made to revolve freely within the slide which contains it, or can be fixed in any desired position by a set-screw. The advantage of this fact is that the prismatic effect of the cell may be exerted in any direction whatever, and this direction is indicated by the graduated circumference of the slide.

Each cell is composed of two prisms of 15 degrees each, super imposed one upon the other, the two prisms possessing the power of revolving with equal rapidity, but always in exactly opposite directions, the motion being communicated to them by a thumb-screw whose distal end is provided with cogs articulating with the circumferences of the prisms between which it is placed. Since the two prisms always move simultaneously and with equal rapidity and in opposite directions there are two points in each complete revolution of the prisms at which they completely neutralize each other, and these points, which are situated at opposite extremities of a diameter, are marked 0 upon the graduated circumference of the cell.

Now it is evident, that starting at a point at which the two prisms neutralize each other, a revolution through an arc of 90 degrees will cause the bases of the prisms to exactly coincide and their apices to correspond, thus giving a total prismatic effect of 30 degrees, equal to that of the two prisms combined. This point is accordingly marked 30 degrees on the circumference of the cell, and is situated just 90 degrees from the points marked 0 degrees. It is also evident that at 180 degrees from the point just marked 30 degrees there will obtain the identical relations of the prisms to each other, and this point should accordingly be marked 30 degrees. Then the intermediate points in each quadrant between points marked 0 degrees and 30 degrees can be easily determined by calculation or neutralization by prisms of known strength, and thus the graduation of the circumference of the cell is completed. The cell as thus arranged is capable of manifesting in a rectilinear direction a prismatic effect varying by insensible gradations from 0 degrees to 30 degrees. The cell in the other slide is capable of accomplishing the identical result, and hence with the complete phorometer we can secure any amount of prismatic power from 0 degrees to 60 degrees. Not only this, but since each cell is freely movable within the slide which contains it, we can at will determine the direction in which this prismatic power shall be exerted.

The important feature in the effect of two equal and superimposed prisms revolving in contrary directions within the same cell, is that the image transmitted through them is always deflected in a straight line and not in curves, and that the increments of prismatic power are infinitesimal, so that the maximum impulse to fusion of images is secured.

For the practical application of this instrument to the various forms of heterophoria, the procedure would be briefly as follows:

To test for esophoria and exophoria; so adjust one cell that it will produce a vertical diplopia. Then so adjust the other cell that it shall be neutral, and in such a position that subsequent rotation of its prisms will produce horizontal deflection. Then if the images are in the same vertical line the examination shows orthophoria, and if the images are not in the same vertical line rotate the prisms, producing lateral deviation, until the images pass through the same vertical line and the index of the instrument will point out the number of degrees of esorphoria or exophoria, according to the circumstances of the case.

To test for hyperphoria, right or left, start with the cells in the same positions as above, then rotate the prisms of cell producing lateral deflection until horizontal diplopia is produced, and then rotate prisms of cell producing vertical deviation until the images appear in the same horizontal line, and read off the hyperphoria upon the graduated arc of the cell.

For measuring abduction, start with the same positions as above and rotate prisms of cell causing lateral deflection so that their bases pass inward, and as soon as fusion of images is no longer possible the limit of abduction is reached and can be read from the arc.

For measuring adduction, adjust both cells so that the subsequent rotation of prisms will cause horizontal deflection of images and then rotate the prisms so that their bases turn outward and continue until diplopia develops and then read the degrees from the two cells, and the sum will represent the total power of adduction.

For testing sursum-duction and deorsum-duction, place both cells in neutral position, one of which must have the axes of its prisms horizontal, and then rotate these prisms until the power of fusing the images is lost, and read from the arc the degrees of sursum-duction, or deorsum-duction, as the case may be.

Finally, for any kind of oblique, horizontal or vertical rectilinear deviation leading to diplopia, adjust the neutralized cells so that their prismatic power when exerted shall be in the direction favoring the fusion of images, and when monocular vision follows the phorometer will indicate the strength and position of the prisms which measure the heterotropia. These possibilities are true whether the deviation is due to spasm, or paresis, or paralysis of one or more ocular muscles, provided the extent of the deviation does not exceed 60 degrees, which is the maximum capacity of the instrument described. But if it is desired the strength of the component prisms could be readily increased so as to extend still further the field of investigation.

In conclusion I would say, that with this phorometer we can measure with rapidity and accuracy any form of simple or compound heterophoria and any form of diplopia within the combined power of the prisms employed.

SOCIETY NEWS.

Boston Medical Society.—At a meeting of the Boston Medical Society held on Jan. 1, 1898, the following officers were elected for the ensuing term: Dr. S. Goodman, president; Dr. R. K. Noyes, first vice-president; Dr. F. J. Kelleher, second vice-president; Dr. M. Gerstein, secretary; Dr. V. Bychower, treasurer; Drs. N. M. Goodman, Chas. F. Parker, A. Rovinsky, H. P. Leonard, J. J. Hanley, B. L. Bernard, directors. The subject for discussion was "Medical Abuses in the Hospitals and Dispensaries, Their Causes and Remedies for the Same." The following took part in the discussion: S. Goodman, F. F. Whittier, N. M. Goodman, F. J. Kelleher, Gustavus Liebman, Ph. Losnowsky and A. Rovinsky. Papers on the subject were read by Drs. R. K. Noyes, Chas. F. Parker, M. Gerstein, the latter dwelling on the abuses in the lying-in-hospital out-patient department.

MISCELLANY.

The Russian Kvas as a Substitute for Beer.—Dr. Karl Frankel has suggested the Russian drink kvas as a substitute for beer, which so many of the members of the congress at Moscow, though tasting it for the first time, found so pleasant and refreshing. During the hot days at Moscow nothing seemed more palatable than this simple fermented liquor, which is not unlike our own popular root beer. Kvas contains scarcely 0.5 per cent. of alcohol, and most Americans who attended the congress would agree with Dr. Frankel that it would form an excellent substitute for beer during the heated term when the desire to consume a good deal of liquid is almost irresistible. —Correspondent of the *Medical News*.

Can Not Testify to Own Insanity.—For the purpose of avoiding the legal consequences which would naturally follow from joining in the erection of a division fence, the plaintiff, in the case of O'Connell against Beecher, was permitted to testify that in 1883 he fell from a building, and was severely injured. This, the fourth appellate division of the supreme court of New York holds, October, 1897, was competent. But he was further permitted to testify that for eight or nine years thereafter his mind was not right. That this latter testimony was not stricken out, on objection, the court pronounces reversible error, on the ground that the witness was not an expert, and was not competent to give an opinion upon this question. It would establish a dangerous rule, the court goes on to say, to hold that a party to a contract or a transaction is competent to testify that he was not of sound mind at the time of the transaction, or at the date of the contract.

Naval Hospital Corps Proposed.—Secretary Long has sent to the House Naval Committee a draft of a bill "to organize a hospital corps of the United States Navy, to define its duties and regulate its pay." The Secretary says it is understood that the operations of the Army Hospital Corps are satisfactory, and that a similar organization in the Navy can be established and maintained with practically no additional expense. The corps, as proposed, is to consist of twenty pharmacists at $75 per month and five at $100; sixty-five hospital stewards at $60; thirty first-class hospital apprentices at $24; sixty hospital apprentices at $18. The proposed naval hospitals are to be located at Portsmouth, N. H.; Chelsea, Mass.; Newport, R. I.; New York City, Philadelphia, Washington, Norfolk, Va.; Pensacola, Fla.; Mare Island, Cal., and Yokohama, Japan. The scheme includes navy yards and flagships.

Suggestive Statistics.—New York, or since the opening of the year, more correctly Borough of Manhattan, New York City, has one ward, the tenth, with a population of 413,000 to the square mile and a voting strength of nearly the unit. The population of the Whitechapel district of London is 393,000 to the square mile. New York consumes daily 25,000,000 more gallons of water than does London; the former city has a birth every nine minutes and a death every ten and a half minutes, while the latter city has a birth every three minutes and a death every five minutes. In London one out of every sixteen inhabitants seeks relief through public charity, while similar aid is sought in New York by one out of each two hundred. London has a police force of 16,000 while New York has to depend upon not quite half that number, but in London the population moves more like a procession than in New York and much more alertness is required in the management of its street traffic, with perhaps a greater respect for the rights of the individual. Still, New York arrogates to itself the finest constabulary of the world. Travelers agree that both these great communities display the racial stoicism of the Teuton even in their crimes, without the leaven of gayety in their sports so apparent in Paris. The struggle for existence in all three of these dense communities has nearly obliterated the Spartan simplicity of the home and has focused their wealth in divers enterprises. The whole three at the present time are trying to refract their accumulations over the diminished areas of a more compact aggregation of living masses. In other words, the moneyless are in a state of siege, with the watchword that the world owes them a living. Sanitation may make life more tolerable, but can scarcely be expected to enter too deeply into moving causes.

Retirement of Dr. Julius Kohl.—At the annual meeting of the Illinois State Board of Health held at Springfield, Ill., Jan. 4, 1898, the following was adopted relative to Dr. Julius Kohl, whose time on the Board had just expired:

> WHEREAS, The term of service of Dr. Julius Kohl as member of the Illinois State Board of Health having expired by limitation, we, his late associates, take the occasion of his retiring to express our regard for his ability, professional probity and sterling manliness. Honest, sincere, discreet, fearless in the discharge of every duty, Dr. Kohl won our respect and esteem while with us, and at parting, carries with him our solicitude for his welfare, our best wishes for his happiness.

Hereditary Insanity as a Defense.—In the murder case of State vs. Van Tassel, the defendant's father testified to the insanity of a brother, an uncle of the defendant. Was this single circumstance admissible in evidence? The supreme court of Iowa holds that it was not (October, 1897). It says that when there is evidence of a want of motive, or other evidence furnishing a basis for inquiry as to the insanity of the accused at the time of committing the criminal act, evidence of hereditary insanity may be introduced. But mere proof of insanity in a parent will not be sufficient to constitute a defense if the other evidence negatives the presence of insanity in the accused. Proof of hereditary insanity is admitted as cumulative evidence, and insanity of ancestors is of itself no defense. The reason for this, undoubtedly, continues the court, is that the burden is upon the defendant to establish this defense by a preponderance of the evidence. And proof of an isolated case of insanity in the family, especially that of a remote relative, will not of itself overcome the presumption of sanity.

Intratracheal Medication.—Dr. J. A. Thompson's article in the JOURNAL of June 26 has received the compliment of editorial discussion in the London *Lancet* for September 4. The writer in that discussion may be said to be in agreement with the American physician, but has doubts whether or not the localization of treatment along the respiratory tract can be extended beyond dilated bronchi. It may be expected that if a large tuberculous cavity communicates with a bronchus it is possible that a tracheal injection of guaiacol might prove beneficial; but that the drug acts locally on the lung tissue itself, especially at the apices, has by no means been proved. The *Lancet* article also remarks that medicines administered by tracheal injection are not changed by passing through the digestive organs into unknown compounds, and for this reason we can be more certain of their action. "No one would think of treating a tuberculous laryngitis by internal medication alone. There is just as much reason for applying medicines of known beneficial local action directly to the lungs as there is for using them in the larynx." (Quotation from Dr. Thompson.) The weak point of this suggestion is that we can not get at the diseased portions of the lungs as we can at the larynx, but at the same time if guaiacol has a local action on tuberculous deposits, if the injection is well tolerated, inspiratory efforts may carry the drug some little distance into the lung and some of it may be absorbed by the parenchyma of the lung, and so the desired effect be produced. Guaiacol and similar preparations frequently produce ill effects when taken by the mouth, and have to be discontinued; so also various expectorants, such as are used in acute and subacute catarrhal diseases, act injuriously on the stomach and intestine. The name of one class, nauseating expectorants, testifies to the universal recognition of this fact. The diseases most suitable to this form of treatment, according to the writer, are pulmonary tuberculosis, pulmonary syphilis, chronic bronchitis, inflammation of the trachea, asthma and bronchiectasis. Tracheal injections have been most extensively tried in pulmonary tuberculosis and with varying success by different observers. The writer appears to endorse the opinion of the American physician when advocating his method in chronic bronchitis. He believes there is no comparison between the two methods of treatment. The results are so much more rapid and satisfactory by intratracheal medication that no patient who has once been given this treatment is ever willing to continue internal medication. The method will doubtless be given an extended trial, and the experiences of other physicians will be awaited with interest.

Surgery of the Lungs.—The more accurate diagnosis which is now possible with radiography, more general recognition of the tolerance of the lungs and improved technique are leading to more frequent intervention, Tuffier remarked in his address at Moscow on this subject. Most of the 306 operations on record have been performed for gangrene. The immediate result is the disappearance of the putrid expectoration and of the fever. Much depends upon a soft, well-adjusted drain. The following remarkable results have been attained: Thirty-nine recoveries in fifty-five metapneumonic gangrenes; one in four cases of gangrene with ectasia of the bronchi; two recoveries in seven cases of embolism; one in one from a gunshot wound. In forty-nine cases of abscess of the lung, probably mostly encapsulated intralobular suppurating pleuritis, 23. per cent. succumbed to the pneumotomy. Three cases of incipient tuberculous foci were cured, but the operation in cavities was followed by death in thirteen out of twenty-six cases operated. The opened cavities rarely cicatrized and only one or two were improved. Intraparenchymatous injections in tuberculosis also proved ineffectual. No primary neoplasms have yet been operated, but seven cases are on record in which a sarcoma had extended to the wall over the lung and been operated. For these difficult operations he resorts to tracheal insufflation with respiration by pressure through a tamponed canula introduced into the larynx. He rejects puncture in hydatid cysts as unreliable and dangerous, from possible perforation of the bronchi. There are twenty-nine operations for aseptic lesions on record (twenty-two recovered, 75.8 per cent.; and seven died, 24.1 per cent). This includes traumatic lesions, hernia, neoplasms and tuberculous nodules. Sixty-one operations were performed for hydatid cysts (fifty-five recoveries and six deaths). The remaining 215 were performed for septic lesions (140 recovered, 64.8 per cent.; 75 died, 35.2 per cent.). This includes tuberculous cavities, 36, 16 deaths; abscesses, 49, 12 deaths; bronchiectasia, 45, 13 deaths; foreign bodies, 11, 4 deaths; gangrene, 74, 30 deaths; actinomycosis, 1, no death. Total 306; cured, 217; died, 88. Sapiejko stated that he locates adhesions with an exploratory needle connected with a manometer; when the point of the needle projects into an open space the manometer is lowered, while it remains stationary if the needle encounters adhesions. Doyen urges the utmost possible haste in suturing the pleura. He exhibited a laryngeal canula with bulb to produce strong artificial respiration in asphyxia. D'Antona recommends provoking coughing, compressing the sound lung at the same time, which causes the diseased lung to bulge out through the wound and prevents pneumothorax.

Lowell Institute Lectures, 1897.—One of the Lowell lectureships was this year held by Prof. Michael Foster of Cambridge University, who is to consider a subject of unusual interest to our profession. "Some Features of Brain Work" were presented by this well-known English physiologist in a course of six lectures, beginning October 18. From the brief summary printed on the tickets, as well as from the success of the opening lecture, it is evident that the physiology of the nervous system in its unity as well as its complexity, as revealed by modern research, is to be sketched by a master hand. Professor Foster requires no introduction to those members of the medical profession who have obtained their medical education within twenty years. In his text-book, published for the first time in 1877, the advanced student and the original investigator found not a collection of isolated and often conflicting statements, but a logical and careful presentation of evidence, with wise suggestions as to the direction in which truth was to be sought in those fields where investigations had yielded only uncertain results. In its successive editions the work has kept pace with the advance of physiology, and its author has shown us how in physiology, as in other sciences, the "solid nucleus of acquired truth year by year grows larger at the expense of its envelope or zone of strife where truth and error mingle in conflict." Professor Foster began his career as a physiologist in 1867, as lecturer on practical physiology in University College, London. In 1869 he was appointed professor in the same institution. In 1870 he became prelector in physiology at Trinity College, Cambridge, and in 1883 was appointed first professor of physiology in the University of Cambridge. Since 1881 he has held the position of secretary of the Royal Society, and in this capacity has exerted a strong influence upon the development of science in England. He took a prominent part in the deliberations of the International Congress of 1896, in which it was decided that, beginning with the year 1900, a card catalogue of the scientific literature of the world shall be published under the auspices of the Royal Society, and when this great undertaking shall be inaugurated the result will be largely due to the energy and sagacity of Michael Foster.—*Boston Medical and Surgical Journal.*

Successful Evacuation of Hydatid Cysts of the Liver.—Cheney (*Archives of Pediatrics*, Vol. xiv, No. 11, p. 851) has reported the case of an Italian boy, 7 years old, who came under observation with vague symptoms: Occasional pain in the right side, headache now and then but not constantly, and during the previous week several vomiting spells. His appetite was reported to be fair. He slept well at night and his bowels moved regularly each day, but his mother had noticed a swelling in the right side, about two years before, which had never disappeared, but had rather grown larger. The child appeared healthy, although his body and limbs were moderately emaciated. No icteric hue could be detected about the skin or conjunctivæ. The tongue was heavily coated with a yellowish fur. On inspection a swelling was plainly visible in the region of the liver, and on palpation it was found to extend downward as far as the level of the anterior superior iliac spine, and inward to the median line. The swelling was evidently somewhat tender to the touch. Its outline was smooth, not nodular, and its consistence hard throughout most of the extent, but in one part, about three inches below the border of the rib, the swelling was distinctly fluctuating. Running across the right side of the abdomen, just below the border of the ribs, there was appreciable to touch and sight a sulcus or groove, apparently separating the mass below from the liver above. The lower border of the tumor was sharp and distinct, and the examining fingers could easily be inserted beneath it, and it descended on deep inspiration. On percussion there was dulness over the area of swelling directly continuous with the liver-dulness above, but not extending to the lower edge of the tumor as determined by palpation. In a zone about two inches in width over the lowest portion of the tumor the percussion note was tympanitic. The dulness extended to the median line internally and to the axillary line externally. Directly back of the axillary line and posteriorly toward the spine the percussion note was tympanitic, the dulness not extending in that region below the normal liver-dulness. Heart, lungs and urinary secretion were normal. Fluoroscopic examination showed distinctly the upper rounded border of the liver rising and falling with each respiration, but it failed to give any idea of the relation of the parts below the level of the ribs and, therefore, left the character of the tumor in doubt. As a final resort puncture with a hypodermic needle was made at the point where fluctuation had been found, and fluid was obtained which was turbid and looked like thin pus. Under the microscope it showed many pus cells, but no echinococcus hooklets. The diagnosis lay between malignant disease, abscess, or hydatid disease of the liver and sarcoma of the kidney or pyonephrosis. To remove the doubt an abdominal incision was made, when it was at once seen that the tumor involved the substance of the liver. From the superficial appearances it was thought to be an abscess of the liver and this organ was accordingly stitched to the edges of the incision, the wound packed with gauze and the boy put back in bed to await the formation of adhesions before opening the abscess. On incising the tumor three days later, thin turbid fluid escaped, together with numerous transparent glistening cysts the size of grapes. The cavity was washed out and the wall of the mother cyst removed. The latter when distended must have measured between four and six inches in diameter. After its removal the liver still seemed to be too large, so that a long hypodermic needle was passed from the cyst cavity upward into the liver beneath the ribs and with this there was withdrawn perfectly clear transparent fluid. An incision was then made in the track of the needle and another cyst, equally as large as the first, was evacuated of its contents of fluid and daughter cysts. Drainage tubes were inserted, the wound dressed and the boy put back to bed. He recovered slowly but without complication.

Societies.

The following meetings are noted:

Alabama.—Madison County Medical Society, Huntsville, January 3.

Illinois.—Chicago Medical Society, January 12, Chicago. Pathological Society, January 10.

Indiana.—Vigo Medical Society, Terre Haute, January 6.

Iowa.—Clinton County Medical Society, Clinton, January 4.

Michigan.—Academy of Medicine, Kalamazoo, January 4.

Missouri.—Annual meeting of the St. Louis Academy of Medical and Surgical Sciences, January 4.

New York.—Medical Society of the County of New York, New York City, December 27.

Ohio.—Guernsey County Medical Society, Cambridge, January 4; Marion County Medical Society, Marion, January 4.

Texas.—Central Texas Medical Association, Hillsboro, January 11 and 12; Corsicana Medical Society, Corsicana, December 26.

Louisville.

GOVERNOR'S MESSAGE.—The message of the Governor to the assembled legislature contains many valuable suggestions which are of interest to the profession. Among many may be mentioned:

Charitable Institutions.—The report of all the Asylums for Insane shows an average decrease in expenditure per capita of $11.35, which in the main is due to the reduction of the salaries of many of the officers. The Central Asylum has saved $10,000 from the appropriation and an ice-plant will be erected which will furnish ice for the institution and by its sale in an adjoining town realize sufficient to pay the running expenses. The Blind Asylum through its excellent management has saved $17,000, which is being used in the construction of additional buildings providing a hospital for the inmates, and remodeling the old building. The Deaf and Dumb Institute is recommended to have its appropriation increased as it has labored under the disadvantage of want of room. An appropriation is asked for the providing of adequate sewerage at the Central and Eastern Asylums.

Houses of Reform.—It is urged that the appropriation necessary for the erection of this institution be provided at once, and that one additional commissioner be appointed as the Board, as at present constituted, is often evenly divided and much important work thus hindered. The appointment of an additional Commissioner would obviate this.

Board of Health.—Attention is called to the fact that there is no State in the Union in which the appropriation is so small for the purposes of this Board as in Kentucky, and that there is none where the Board renders more efficient service. He concludes his reference to the Board of Health as follows: "The operations of the Board in preventing the spread of yellow fever and the prevention of the shipment of diseased cattle into this State is worthy of especial commendation. By their persistent and intelligent action the advertising quack has been driven from the State, on account of which the people have reason to congratulate themselves."

PROFESSOR LAPLACE, of Philadelphia, was the guest of honor at the meeting of the Medico-Chirurgical Society, held on the evening of the 7th inst., the Society being entertained by Dr. Wm. L. Rodman. Because of the social feature of the evening, there was no essay presented, but in lieu of that Dr. Rodman presented several very interesting and instructive cases, chief among which was the patient a picture of whom is to be found in the "System of Surgery," by Park, of multiple enchondromata. The patient was to be operated on the next day, it being necessary for him to sustain an amputation of the right arm, on account of a sarcoma involving the elbow-joint. The Society was entertained by Prof. Laplace in a discussion of this case. At the conclusion of the meeting the following gentlemen met around the banquet board, at the Pendennis Club: Drs. W. L. Rodman; Ernest Laplace of Philadelphia; Johnson of Bowling Green, Ky.; Carl Weidner, Wm. V. Laws, T. H. Baker, Henry Orendorf, George W. Griffith, Jno. G. Cecil, J. A. Larrabee, M. F. Coomes, W. O. Roberts, H. A. Cottell, W. E. Grant, S. E. Woody, J. W. Irwin, Jos. M. Mathews, Louis Frank, A. M. Cartledge, I. N. Bloom, W. H. Wathen, Fouche Samuel, T. S. Bullock, Ap Morgan Vance, H. H. Grant, J. M. Ray, J. E. Hays, Wm. Cheatham, T. H. Stucky, Frank Wilson, Jno. Williams, T. C. Evans, S. G. Dabney, Henry E. Tuley, and Dr. Wm. Bailey, who acted as toast-master. The following toasts were responded to: "The Medico-Chirurgical Society" by Dr. John A. Larrabee; "The Medico-Chirurgical College," Prof. Laplace: "The Clinical Society" by Dr. I. N. Bloom; "The Surgical Society" by Dr. Lewis S. McMurtry; "The Commonwealth and the State Board of Health" by Jos. M. Mathews, and "Reminiscences" by Dr. H. A. Cottell.

Dr. Long.—It is announced that the Governor has accepted the resignation of Dr. J. P. Huff, for some time Superintendent of the Feeble Minded Institute and has appointed in his stead Dr. Jno. L. Long, formerly of this city, but of late First Assistant Physician at the Central Kentucky Asylum for the Insane. There will be a promotion among the assistant physicians and the position of third assistant has been offered Dr. Louise Bergman, and has been accepted. This is the first opportunity that the woman in medicine has had for showing what she is worth in the minds of the profession of the State and the community.

Philadelphia.

Death Rate—The total number of deaths in Philadelphia during last year was 22,735; the mortality ratio being 18.72 per 1,000 living; the smallest death rate in this city since 1879, when the ratio was 17.37. The highest ratio during the last ten years was 22.25, in 1892.

Prevalent Diseases in 1897.—During 1897 the deaths from some of the principal causes were assigned in the Registrar's Report as follows: Consumption of the lungs, 2,388; inflammation of the lungs, 2,723; diseases of the heart, 1,297; cholera infantum, 852; marasmus, 765; inanition, 523; convulsions, 670; teething, 90; apoplexy, 798; cancer, 688; tumor, 118; typhoid fever, 401; uremia, 343; diphtheria, 1,231, and membranous croup, 243. In addition to the above there were 22 deaths from sunstroke, 143 from suicide and 814 from old age.

Diphtheria.—There has been, during the last three or four months, an epidemic of diphtheria of moderate severity, affecting principally Germantown, which is one of the choice resident wards of the city, and which being on elevated ground and well drained is usually regarded as one of the healthiest. All the usual measures and some extraordinary precautions were taken. Nevertheless, the cases continued to increase until it was found advisable to close the neighboring schools temporarily. An attempt was made by the physicians of the health board to make a systematic inspection of the throats of all the pupils before admitting them to the class rooms, each morning, but after a brief experience it was found to be impracticable and was abandoned. Indeed, some of the pupils positively declined to permit the physical examination of their throats to be made and when they were refused admission to the schoolroom the parents, in one or two instances, sent them back with threats of legal proceedings, including injunctions and mandamuses, which complicated matters so much that the directors concluded to send all the children home and to have the infected schools thoroughly cleansed. The number of deaths from diphtheria in 1896 was 862; 1897 it was 1,231 exclusive the 243 deaths returned as membranous croup. It is probable that the antitoxin treatment has been used more extensively in this epidemic than in any which preceded it and from the experience obtained in such a large series of cases it is hoped that valuable deductions will soon be made in contributions to our medical journals and medical societies. The marked increase of the fatal cases of diphtheria over the preceding year of 369 deaths does not warrant an unfavorable verdict in the absence of other data, although if it had been the other way it might have been claimed by enthusiastic advocates as a triumph for antitoxin (*vide* report of the New York Board of Health for 1895). The mortality rate under this treatment will be given later when the entire number of patients treated by this agent has been made known and its value may then be more definitely settled. There was also an increase of 221 in the number of deaths from scarlatina last year over that of the preceding year.

Hygienic School Regulations.—The Committee on Hygiene of the Board of Education considered favorably the suggestions contained in a communication from the City Board of Health and recommended their adoption: 1. That individual drinking cups be provided for each of the pupils. 2. That passing of pencils from one pupil to another be prohibited. 3. That schools in infected districts be scrubbed once a week and floors and walls washed with carbolic acid solution. 4. That children having symptoms of illness be promptly sent home to remain until well. 5. That wall decorations of plants and shrubbery be not allowed to remain on the walls of class rooms longer than between sweepings.

College of Physicians.—At the annual election January 5, Dr. John Ashhurst, Jr., was elected president of the College; Dr. William W. Keen, vice-president and Dr. Thomas R. Neilson, secretary. Dr. M. B. Hartzell read a paper entitled "Infectious Multiple Gangrene of the Skin, Report of a Case with Illustrations." Dr. John B. Deaver read a communication on "The Necessity for Prompt Surgical Interference in Typhoid Perforation and Appendicitis Complicating Typhoid Fever with Report of Cases" The discussion was opened by Dr. James C. Wilson.

Presentation of a Portrait of the Late Dr. Thomas S. Kirkbride.—At the same meeting of the College, there occurred the impressive ceremony, the unveiling of a portrait of Dr. Thomas Story Kirkbride, M.D., LL.D., who had been a Fellow of the College from 1839 until he died in 1883. The painting which is life size and an admirable likeness, was presented on behalf of the family of the late medical superintendent of the Pennsylvania Hospital for the Insane, by Dr. John B. Chapin, who is the successor in that office of Dr. Kirkbride. The president of the College, Dr. J. M. DaCosta, in a few words acknowledged the gift and returned the thanks of the College to the donors.

The Anatomical Board and the Colleges.—The trustees of the University of Pennsylvania, by Charles C. Harrison, the Provost of the institution, filed a bond in court in the sum of $1,000, given to the Commonwealth of Pennsylvania for the faithful performance of their duties under the Act of Assembly relating to the use of unclaimed human bodies. It is said that the State Anatomical Board are investigating the fulfillment of the provisions of the act among the various medical colleges in this city, and will require all of them to file a bond similar to that of the University of Pennsylvania. The trustees of the University are bound as follows: "The condition of this obligation is such that if the above bounded obligators do well and truly comply with the terms and provisions of an Act of Assembly approved the 13th of June, 1883, entitled 'An act for the promotion of medical science by the distribution of unclaimed human bodies for scientific purposes through a board created for that purpose, and to prevent the unauthorized uses and traffic in human bodies,' and shall only use human bodies received by them under the terms and provisions of the said Act of Assembly for the promotion of medical science within this State, then this obligation will be void, otherwise to remain in full force and virtue."

Medico-Chirurgical College.—Dr. Sajous, on account of pressure of other engagements, has resigned the deanship of the Medico-Chirurgical College and has withdrawn from the faculty. Dr. Seneca Egbert was elected dean and secretary of the faculty.

Reception to the County Medical Society.—Dr. James Tyson, President of the County Medical Society, followed the very pleasant custom, introduced several years ago, of giving a reception to the members of the County Medical Society at the close of his term as president. Dr. Tyson's reception was given at the Hotel Bellevue on the 8th inst., and was largely attended. Among the out-of-town guests were Dr. Flint of New York and Dr. Howard A. Kelly of Baltimore.

CHANGE OF ADDRESS.

Avery, S. J., from 34 Washington to 780 Walnut St., Chicago.
Curry, Wm., from Palmyra to Burr, Neb.
Craig, D. W., from 1102 N. Halsted to 985 N. Halsted St., Chicago.
Gibbons, J. H., from 2052 Locust to 824 S. 19th St., Philadelphia, Pa.
Greenebaum, E. C., from 468 E. 42d St. to 29th and Groveland Ave., Chicago.
Gihon, A. L., from 233 5th Ave. to 101 E. 25th St., New York.
Hoge, M. D., Jr., from 7 N. 3d to 308 E. Grace St., Richmond, Va.
Lemon, C. H., from 419 Farrell to 465 Murray Ave., Milwaukee, Wis.
Meany, W. B., from St. Louis, Mo., to 1608 Fourth Ave., Louisville, Ky.
Mullen, T. R., from Marcus, Iowa, to Eddy Bldg., Bloomington, Ill.
Murray, S. J., from 207 Washington Park, Brooklyn, N. Y., to Charlestown, N. Y.
Mattison, F. C. E., from Chicago to Pasadena, Cal.
Peterson, R., from Grand Rapids, Mich., to 4621 Woodlawn Ave., Chicago.
Silverberg, G. M., from 465 Marshfield to 314 Center Ave., Chicago.
Taylor, J. T., from Acworth to Bedford, N. H.
Yeager, F. N., from 2400 Oxford to 2826 Oxford St., Philadelphia, Pa.

LETTERS RECEIVED.

Allen, J. B., Cambridge City, Ind.; Arlington Chemical Co., Yonkers N. Y.; Aronson, E., Dallas, Texas; Allport, Frank, Chicago; American Therapeutic Co., New York; Adcock, J. A. B., Warrensburg, Mo.

Brown, J. E., Columbus, Ohio; Bennett, J. W. (2), Brook Haven, Miss.; Bulletin Mercantile Co., Hornellsville, N. Y.; Bryce, P. H., Toronto, Canada; Becton, Dickinson & Co., New York; Barnes & McFarland, Stamford, Conn.; Boyers, J. S., Decatur, Ind.

Cullen, G. I., Cincinnati, Ohio; Cukier, X., New York.

Dodd, F. B., Waucoma, Iowa; Douglas, D. E., Quercus Grove, Ind.; Dorman, H. W., Ashtabula, Ohio.

Elliott, H. G. (2), New York; Eidenmuller, W. C., San Francisco, Cal.; Eastman, Joseph R. Indianapolis, Ind.; Emerich, E. L., Cleveland, Ohio.

Fenn, C. M., San Diego, Cal.

Grube, John E., Braddock, Pa.; Greaves, W., Northfield, Minn.; Green C. C., Beaver City, Neb.; Greene, F. M., Lexington Ky.; Greene, B. E.

New York; German-American Bottling, Brewery, Wine and Distillery Co., Frankfort-on-Main, Germany; Gessner, H. B., New Orleans, La.

Hnmmel, A. L., Advertising Agency, New York; Hektoen, L., Chicago; Hopkins, J. N., Burnt Prairie, Ill.; Hattendorf, Louis, 54 E. 109th St., New York; Hawkins, T. H., Denver, Colo.; Haas, Edw. H., St. Paul, Minn.; Hare, H. A., Philadelphia, Pa.; Hatch, Theo. L., Owatonna, Minn.

Ingals, E. Fletcher, Chicago.

Johnson, S. S., Starbuck, Wash.; Jackson, Edward, Philadelphia, Pa.

Keen, W. W. (2), Philadelphia, Pa.; Kerr, Norman, Chicago; Knopf, S. A., New York.

Lumley, W. A., Renville, Minn.; Loveland, B. C., Clifton Springs, N. Y.; Leal, Mannel T., Mexico, Mexico; Lehn & Fink, New York.

Murphy, J. M., Arcadia, Ind.; Mariani & Co., New York; Mattice, R. I., Omaha, Neb.; McCray, F. H., Schaller, Iowa; McGillicuddy, T. J., New York; Miles, A. J., Cincinnati, Ohio; Medical and Surgical Reporter, Toledo, Ohio; Mulford, H. K., Company, Philadelphia, Pa.; Moss, H. P., Parkersburg, W. Va.; Mullen, T. R., Bloomington, Ill.; Mattison, C. E. Chicago.

Newman, W. H., Grinnell, Iowa.

Osbaldeston, J. T., Detroit, Mich.; O'Ferrall, R. M., Piqua, Ohio.

Perkins, L. J., Pendleton, Ore.; Parker, A. A., Omaha, Neb.; Pancoast, J. W., Philadelphia, Pa.; Parrish, J. C., Vandalia, Mo.

Roush, William, Spencerville, Ohio; Robertson, Lee C., Dunkirk, N. Y.; Reynolds, Albert, Clinton, Iowa; Ritchey, J. B., Allegheny, Pa.; Rosenthal, Edwin, Philadelphia, Pa.; Roop, J. W. (2), Petersburg, Ark.; Rhodes, L. J., Plainfield, Wis.

Sargent, J.P., Stockton, Cal.; Schering & Glatz (2), New York; Sternberg, G. M., Washington, D. C.; Stearns, F. & Co., Detroit, Mich.; Stubbers, J. E., Liberty, N. Y.; Schultz, E. F., Milwaukee, Wis.; Seidler, W. F., Newark, N. J.; Stevens, C. S., Athens, Ga.; Shastid, T. H. (2), Battle Creek, Mich.; Swantees, S. F., Madison, Wis.; Stearns, Frederick & Co., Detroit, Mich.; Strong, Mrs. O. D., Fort Atkinson, Wis.

Tannenbaum, S. A., New York; Thompson, U. M., Wilmington, Del.; Thomson, T. Ferguson, Milwaukee, Wis.

Veasey, Clarence A., Philadelphia, Pa.; Vandervoort, J. W., Harveysburg, Ohio.

Wakely, T. A., Jacksonville, Ill.; Webster, W. B., Schuylerville, N. Y.; Woodbury, Frank, Philadelphia, Pa.; Worden, J. E., Chicago; Watson, W. S., Matteawan, N. Y.

PAMPHLETS RECEIVED.

Address in Ophthalmology. By J. R. Willetts. Paper, 22 pages. Reprinted from Pa. Med. Jour.

Alcohol as a Medicine; Appendicitis; Are We as Physicians Doing Our Duty to the Public in Matters Pertaining to Heredity? Immediate Operations; Medical Laws of Tennessee; Medical Legislation; Morphinism in its relation to the Sexual Functions and Appetite, and its Effect on the Offspring. By T. J. Happel. Reprints.

Alcoholism in Women: Its Cause, Consequence and Cure. By Agnes Sparks. Paper, 8 pages. Reprinted from Medico Legal Jour.

Angina Pectoris; Case of Carcinoma of Descending Colon; Excision and Anastomosis, Recovery; Case of Leucemia; Clinical Study of Widal's Serum Diagnosis of Typhoid Fever; Disappearance of Endocardial Murmurs of Organic Origin. By J. H. Musser. Reprints.

Annual Reports of the State Board of Medical Examiners of Tennessee, I. vii. Paper.

Antivenene in the Treatment of Leprosy. By Isadore Dyer. Paper, 24 pages.

An Unusual Phyto-Bezoar. By Wm. Trelease. Paper, 8 pages. Illustrated.

Appendicitis, My Recent Work In. By A. C. Bernays. Paper, 15 pages. Reprinted from St. Louis Med. and Surg. Jour.

Aseptic Celiotomy, results of; Treatment of Intraligamentous and Retroperitoneal Uterine Myomata; Treatment of Uterine Myomata and Diseases of the Uterine Adnexa per Vaginam; Umbilical and Ventral Hernia; Vaginal Hysterectomy. By W. H. Wathen. Reprints.

Atropin Rhinitis; Hereditary Deafness. By Lewis S. Somes. Reprints.

Cholelithotomy, Report of Seven Cases; Surgical Technique of Operations for Pus in the Pelvis; Twenty-five Consecutive Successful Supravaginal Hysterectomies for Fibroid Tumors. By I. S. Stone. Reprints.

Circular Resection of Pylorus, Cecum with Ascending Colon and Sigmoid Flexure, Report of Cases. By J. J. Buchanan. Paper, 6 pages. Reprinted from Annals of Surgery.

Clinical Value and Chemic Results of Using Prof. Gaertner's Mother Milk for Children. By Louis Fischer. Paper, 24 pages; charts. Reprinted from Med. Record.

Contusions of the Lids, Treatment of. By Charles H. May. Paper, 8 pages. Reprinted from Med. Record.

Cornea and the Cautery, The; Ophthalmic Science in its Application to School Hygiene. By C. S. Rodman. Reprinted from Med. Record.

Dermatitis Herpetiformis, Presenting Many of the Features of Impetigo Herpetiformis; Report of Seven Cases of. By J. A. Fordyce. Paper, 12 pages. Illustrated. Reprinted from Jour. of Cut. and Genito-Urinary Dis.

Diagnosis by Inspection in the Urinary Tract; The Origin of Corpora Amylacea in the Prostate Gland. By J. R. Eastman. Reprints.

Differential Diagnosis of Ascites. By A. R. Edwards. Paper, 12 pages. Reprinted from Medicine

Element of Fear in Hemoptysis. By W. T. English. Paper, 14 pages. Reprinted from Pa. Med. Jour.

Endemic Multiple Neuritis (Beriberi). By E. D. Bondurant. Paper, 38 pages. Illustrated. Reprinted from N. Y. Med. Jour.

Evolution and Perfection of the Aseptic Surgical Technique; The Operation itself in Appendicitis. By L. S. McMurtry. Reprints.

Feasibility of Controlling Pernicious Vomiting by Means of Intubation of the Larynx with a Specially Adapted Tube. By C. L. Green. Paper, 4 pages. Reprinted from Br. Med. Jour.

Histologic Basis of the Neuron Theory. By D. I. Wolfstein. Paper, 35 pages. Illustrated. Reprinted from Lancet Clinic.

Hysteria Simulating Organic Disease of the Brain; Nervous Disorders Simulating Peritonitis; Respiratory Paralysis from Hemorrhages Around the Medulla. By S. D. Hopkins. Reprints.

Indications for Examination of the Uterus and the Treatment of Certain Conditions Immediately Following Childbirth. By H. D. Fry. Paper, 12 pages. Reprinted from Am. Jour. of Obstet.

Is There a Daily Rhythm in Epilepsy? By A. F. Witmer. Paper, 10 pages; charts. Reprinted from Med. and Surg. Rep.

John Crerar Library; Annual Report for 1895 and for 1896. Paper. Chicago: 1897.

Law Regulating the Practice of Medicine and Surgery in Idaho. Paper, 12 pages. Boise, Idaho: 1897.

Leadville Campaign, The; New Apparatus for the Fixation of Bones after Resection and in Fractures with a Tendency to Displacement. By Clayton Parkhill. Reprints.

Ligation of the Dorsal Vein of the Penis for Impotency. By E. E. Tracy. Paper, 7 pages. Reprinted from Med. Standard.

Malarial Fevers, Exact Treatment of. By C. D. Slagle. Paper, 12 pages. Reprinted from Ther. Gaz.

Malignant Papillary Dermatitis with Especial Reference to its Pathology. By F. H. Wiggin and J. A. Fordyce. Paper, 14 pages. Illustrated. Reprinted from N. Y. Med. Jour.

Massage Movements and Bandaging in the Treatment of Displaced Semilunar Cartilages. By Douglas Graham. Paper, 12 pages. Reprinted from Am. Jour. of the Med. Sciences.

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Plica Polonica. By F. E. Fronzak. Paper, 40 pages. Reprinted from St. Louis Med. and Surg. Jour.

Progress of Laryngology; Treatment of Laryngeal Tuberculosis with Cupric Interstitial Cataphoresis; Transillumination in Diseases of the Nose, Throat and Ear. By W. Scheppegrell. Reprints.

Psychiatry in the Southern States. By T. O. Powell. Paper, 58 pages. Reprints from Proceedings of Am. Medico-Psychologic Association.

Rabies; Hydrophobia. By T. R. MacClure. Paper, 61 pages. Reprinted from Proc. of Sanitary Convention, Charlotte, Mich., 1894.

Radical Cure of Inguinal Hernia. By J. M. Banister. Paper, 16 pages. Reprinted from Proc. of seventh annual meeting of Association of Military Surgeons of the United States.

Resection and Advancement of the Levator Palpebræ Muscle in Traumatic Ptosis. By C. A. Oliver. Paper. Reprinted from Univ. Med. Mag.

Rheumatic Affections of the Throat and Nose. By G. E. Seaman. Paper, 14 pages. Reprinted from Milwaukee Med. Jour.

Silber als Aeusseres und Inneres Antiseptum. Von Dr. Credé. Paper, 18 pages. Reprinted from Archiv für klin. Chir.

Skiagraphic Dermatitis. By J. Y. Dale. Paper, 6 pages. Reprinted from Med. News.

So-called Hot Air Treatment of Painful and Partially Ankylosed Joints and an Experimental Investigation of the Physiologic Effect of the Local Application of Hot Air on General Metabolism; Suicide. By C. H. Hughes. Reprints.

Syphilis of the Central Nervous System. By Sidney Kuh. Paper, 28 pages. Reprinted from Alienist and Neurologist.

The Union Label in Theory and in Fact. By S. H. Nichols. Paper, 14 pages. Reprinted from North Am. Rev.

Thyroid Gland Treatment of Cretinism, with Report of a Case. By S. H. Friend. Paper, 16 pages. Reprinted from Med. News.

Treatment of Diphtheria with Diphtheria Antitoxin. By E. Rosenthal. Paper, 48 pages.

Treatment of Retroversion and Providentia Uteri by the Method of Dr. Irish. By Frank Blaisdel. Paper, 15 pages. Reprinted from Atlantic Med. Weekly.

Tuberculin in Dermatology. By A. Ravogli. Paper, 8 pages.

Two Cases of Erythromelalgia. By D. W. Prentiss. Paper, 13 pages.

Urgent Need of Sanatoria for the Consumptive Poor of Our Large Cities. By S. A. Knopf. Paper, 11 pages. Reprinted from N. Y. Medical Record.

Warm Bath, a Modification of Brand's Method, The. By Otto Lerch. Paper, 8 pages. Reprinted from New Orleans Med. and Surg. Jour.

Trade Pamphlets.

Acute Peritonitis; Exophthalmic Goiter; Traumatic Tetanus. St. Louis: Battle & Co.

"Apenta," Reports and Opinions. London: The Apollinaris Co.

Chloralamid. New York: Lehn & Fink.

Daniel's Concentrated Tincture Passiflora Incarnata. Atlanta: J. B. Daniel.

Do Not Stammer. The Philadelphia Institute.

Eureka Springs. Illustrated. St. Louis: Woodward and Turner Printing Company.

Hospital Reports; Carnogen; The Marrow Treatment. New York: Am. Therapeutic Co.

Nutrient Preparations as Substitutes for Meat. New York: Victor Koechl & Co.

Somatose. New York: Am. Biscuit and Mfg. Co.

The Country Doctor. By Will Carleton. Illustrated. Yonkers, N. Y.: The Arlington Chemical Co.

THE PUBLIC SERVICES.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from December 22, 1897, to January 7, 1898.

Capt. William O Owen, Asst. Surgeon, leave of absence granted is extended one month.

Major Louis Brechemin, Surgeon (Ft. Sherman, Idaho), leave of absence granted is extended two months.

First Lieut. Alex. S. Porter, Asst. Surgeon U. S. A., is granted four months' leave of absence.

Major Charles K. Winne, Surgeon (Ft. McHenry, Md.), is granted leave of absence for one month on surgeon's certificate of disability, with permission to leave the Department of the East.

Major Egon A. Koerper, Surgeon (Ft. Crook, Neb.), is granted leave of absence for one month, to take effect on or about Jan. 4, 1898, with permission to apply for an extension of two months.

Capt. Charles F. Mason, Asst. Surgeon (U. S. Military Academy, West Point, N. Y.), is granted leave of absence for two months and seven days

First Lieut. Paane C. Howard, Asst. Surgeon, will be relieved from duty in the Dept. of Dakota when his services are no longer required at Ft. Custer, Mont., and will proceed to Ft. Crook, Neb., and report for duty at that post.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending January 8, 1898.

P. A. Surgeon A. Farenholt, detached from the New York navy yard and ordered to the Puget Sound naval station.

P. A. Surgeon F. W. Olcott, detached from duty at the Puget Sound naval station and ordered to the "Mohican."

Asst. Surgeon T. W. Richards, ordered to examination for promotion January 17 and to the New York navy yard.

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ORIGINAL ARTICLES.

THE ORIENTAL EUNUCHS.

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The word eunuch is Greek and derived from εὐνη and ἔχων, literally having charge of the bedchamber, i. e., a chamberlain. In Hebrew it was *Saris*, meaning mutilated; probably because the first royal chamberlains were castrated men. However, men officially called eunuchs soon began to be employed in all sorts of offices, though many of them were really not such in the surgical sense, and the word became merely equivalent to the term officer. A figure of speech also crept into use in which certain persons for religious reasons are said to have "eunuchized" themselves, who, in the opinion of commentators, underwent no mutilation, but merely lived in total celibacy, like eunuchs, as in the third class mentioned in Matthew, 19, 12. This habit of broadening the definition of words at the expense of their precision is a linguistic trait of oriental countries. The people were very fond of this figurative and hazy use of language; greatly to the perplexity of young western scholars, accustomed from childhood to the clean-cut precision of English definitions.

EFFECTS OF CASTRATION ON ANIMALS.

It will facilitate our study of human eunuchism if we first consider the effects of castration in the lower animals.

The elk.—The finest investigation ever made on this animal was carried out by the late Judge Caton, who had a deer park at Ottawa, Ill. He possessed there a considerable herd of the *Cervus Canadensis*, commonly called the American elk, though strictly speaking it is not a true elk at all, but a very large deer, like the English stag. Two of the males became dangerous from their fighting propensities, and one of them killed a man who had wandered into the park. The Judge had them castrated to reduce their pugnacity, and for two or three years observed the effects on their horns.

The course of horn growth in the uncastrated buck is this: Their so-called horns are not composed of real horny material, but of true bone, and are developed into antlers of immense size. They are shed annually, as in all the deer tribe. During the spring and summer they grow rapidly. They are then covered with skin, hair and connective tissue, and supplied with numerous large arteries and veins running between the bone and the skin. This is the stage called "the velvet." Toward autumn a narrow knobby ridge, or ring of bone, like a narrow provisional callus begins to develop around the base of each horn, which ridge pushes out and presses hard against the nutrient vessels supplying the horn, and in some weeks obliterates them. Then the velvety skin and connective tissue covering the antlers is cut off from nutrition and dies. The bony horn itself also dies later and the dead skin dries and becomes loose, and the animal rubs it off among the trees and bushes, leaving the superb antlers in their perfected condition. The antlers now have no nutrition, except a little derived from the small interior vessels of the cancellated tissue, which are soon obliterated. They are now two immense necrosed bones and in the course of the winter undergo a separation, like any other necrosed bones, and drop off. In the spring a new pair sprouts and develops, like their predecessors. Judge Caton found that if while the young horns were in the velvet the buck be castrated the pair of horns then developing would go on, finish their growth and be shed the following winter as usual, but the next pair were never shed. The effect of the castration is to prevent the formation of the bony ring at the base. Consequently the blood vessels are not obliterated, the horns continue in the velvet, they do not die and are not shed. In our climate however the severity of the winter freezes the antlers and kills them down to a point perhaps eight inches from the skull. The frozen parts ultimately drop off and in the spring numerous small horns, like fingers, sprout up from the stumps. The next winter these are partly frozen, and so on until a pair of large knobby bunches of bone stand up on the top of the head.

So far as I know, no one has ever tried protecting these horns from the winter's cold to see what they would grow to. They would probably attain an immense size.

The ox.—When a calf is castrated he grows to be a larger and taller animal than the bull, but his neck and forequarters are thinner. His cerebellum becomes larger than that of the bull and his horns become both thicker and longer. The voice is changed in pitch while "lowing," but not while "bellowing." There are only three words, so to speak, in the bovine vocabulary: 1. The "low," with which they call each other at a distance. 2. A rough purring, which is used in speaking to each other near by and is made by a slight vibration of the vocal cords with the lips closed; it is especially used by the cow to the calf. 3. The "bellow," which is a growl of defiance.

The change of pitch caused by castration affects only the distant call in "lowing," and affects it in a directly opposite way from the voice of the human eunuch. In the latter the voice remains soprano, as in a boy or woman, while in the adult bull the voice in lowing is an octave higher than that of the cow. The ox retains the pitch of the cow's voice; but the lowing of the young bull rises a full octave when he comes to the age of puberty. The type of sound reminds one of the high falsetto voice sometimes forced out by an untrained bass singer trying to reach a high note.

The horse.—These animals grow larger of frame if castrated young. The voice and the "bridle teeth" do not seem to be changed.

The sheep.—The "wethers," or castrated sheep do not become strikingly larger. The wool of the ram is, however, much more oily than that of the wether, the little yellow drops of oil (called lanolin in pharmacy) being very abundant, so that wool buyer's make a deduction from the price paid for rams' wool on account of the increased weight caused by the oil—or lanolin.

The cat.—These animals grow larger if castrated and are excellent mousers. They take great pains to display their hunting trophies, seeming to take a pride in them and desiring to be petted for their exploits. The voice is not changed.

The squirrel.—Naturalists state that black or gray male squirrels in fighting seek to castrate each other with their teeth, so that many of those taken by hunters are thus mutilated. As they do it only in adult life it does not materially change their general development.

The capon (castrated chicken).—These birds grow to a large size, being 50 per cent. heavier than the full-grown cocks. The flesh is delicate and very tender. Their spurs remain undeveloped, the colored comb and wattles about the head remain very small and the gay ornamental plumage of the cock is mostly wanting Veterinary surgeons assert that capons develop a remarkable nursing instinct and that some of them will take care of a brood of chickens better than a hen.

In general terms, if an animal is castrated young he develops the distinctively male peculiarities in only a slight degree, yet some species produce much larger horns than the perfect male. The ox and the gelding do not completely lose their sexual passion, but make frequent efforts to copulate with females in heat. We will discuss the mental and physical effects on men a little further on.

EUNUCHS IN NINEVEH.

The recent excavations in the ruins of Nineveh, made by Layard and his successors have brought to light many sculptured figures of eunuchs in the retinues of the kings of Assyria. Several palaces were examined and immense numbers of bas-reliefs and inscriptions recovered. These palaces were erected at different periods not very far from 800 B.C. The portals were decorated with colossal winged bulls, and lions with human heads, while the halls and apartments were lined with immense numbers of large bas-reliefs cut on slabs of alabaster; showing historic sieges, battles, hawking excursions, deer hunts, lion hunts, scenes of worship, trains of captives and of spoils taken in war, etc. The Ninevites patronized the hairdressers to a surprising extent, and the sculptors fairly revelled in the elaborateness with which they copied, in stone, these hirsute adornments. The hair, both of the scalp and of the face, was combed neatly in the center, but elaborately waved, crinkled and curled all about the margins in a way that would excite the wonder and envy of any modern dude. The very manes and tails of the horses were treated in a similar way, and also the tufts of hair on the tips of the tails of the colossal winged bulls. Here and there along the sculptured processions, in strong contrast to the bearded men, the eunuchs stand out with their smooth, beardless faces, fat cheeks and bald double-chins. The artists adopted these features as a conventional mode of representing them. They are quite numerous in the royal retinues, and not confined to any particular rank or department of service. They are figured as cooks in the royal kitchen, musicians, personal attendants on the king, cupbearers, foresters, gamekeepers, sword-bearers, military commanders and civil officers of high rank. In the Hebrew scriptures of this same period one of the three high officers sent by the King of Nineveh to demand the surrender of King Hezekiah, is called Rab-Saris, *i. e.*, Master of the Eunuchs (2 Kings: 18;17). At a later period the King of Babylon deputed the "Master of Eunuchs" to select from the captive Hebrew families a number of children to be brought up in the palace, probably as eunuchs and future officers of the royal retinue in Babylon. Daniel, the prophet, is designated as one of these children, and has often been believed or inferred to have been himself an eunuch, though that fact is not explicitly stated, and high Hebrew authorities disbelieve it.

THE PERSIANS.

The great historian, Xenophon, says that eunuchs in Persia were held in such high esteem that they filled offices of the greatest rank and responsibility.

Herodotus, a still earlier writer and called the "Father of History," says the Persian kings prized them most highly for their faithfulness, and entrusted them with the highest offices.

THE HEBREWS.

Eunuchs appear to some extent in the Hebrew records, under the name *saris*, but the term soon partly lost its primary meaning of "mutilated" and became shaded off into the general signification of "officer" whether the person referred to was surgically an eunuch or not. Thus in the story of Potiphar, he is called a "saris," but still he is said to have had a wife. Jewish scholars of high authority think the word had already acquired a secondary meaning, just as in modern armies there are grenadiers who never saw a grenade, and brigadier-generals who never commanded brigades. Kremer says that in modern times there have been actual eunuchs who took wives presumably for the regulation of their households, the government of their female servants, and for the dignity and comfort of a home life.

In Deuteronomy, xxiii; 1, two mutilations analagous to those of a "complete" castration are mentioned, but not as in the same person (a castration is called "complete" when both the testes and the penis are removed). The English version says: "He that is wounded (Hebrew, squeezed or crushed) in his stones, or has his privy member cut off (Hebrew, torn out) shall not enter into the congregation." Jewish commentators understand this to mean that he can not legally marry a Jewish woman.

The "Talmud," which is the literature of the rabbinical schools from 200 B. C. to 400 A. D., mentions both castration of the testicles and the mutilation of the penis. The Hebrew historian describes a successful insurrection headed by Jehu against King Joram and his mother, the talented and forceful Queen Jezebel or Izabel, as the real name probably was, for the English sound of J did not exist in the Hebrew alphabet. The account states that several eunuchs in the queen's palace sided with Jehu (2 Kings: 9; 32). This Izabel, whatever the pronunciation of her name may be, was a Phœnician princess when she married King Ahab, and probably brought the eunuchs with her from Tyre as household servants. Some oriental scholars think that the name Izabel or Isabel, being common in Phœnicia, first went westward with the emigrants from Tyre who founded the city and colony of Carthage, and thence went with the Carthaginians to Spain. There it became a favorite name and at a later period spread all over Christendom, few persons recognizing its identity with Jezebel. Eunuchs are occasionally mentioned in other parts of the "old testament," but in fully half the cases it appears to be in the secondary sense of "officer." The moral sense of the people seems to have been averse to their production and they never became a prominent factor in the government.

ANCIENT EGYPT.

Some Egyptologists doubt whether eunuchs regularly existed in ancient Egypt until the invasions of the Persians and the Babylonians. Professor Breasted of the University of Chicago says, there is some difficulty in identifying eunuchs in the bas-reliefs and mural paintings of Egypt because of the prevalent fashion of shaving, which prevents the absence of a beard in a figure from being any positive proof of castration. Further, he thinks the mural decorations show that in early times the women were not secluded, but had great social liberty, so that there would be little demand for eunuchs. Rosellini, however, claimed to have found them on the monuments, and Lepsius (II. 126) gives a picture of two of them copied from a tomb at Beni Hassan, clearly showing their condition by their beardless and fat countenances. Further, the sacred "Book of the Dead" (xvii, 26) represents the good god Horus, as tearing out the testicles of his enemy, the evil god, Set; while Plutarch, in "Isis and Osiris" (55) says that in Koptos, in Egypt, Horus was pictured as holding in one hand the penis which he had cut off from the god Set. These quotations show that the Egyptians knew of both steps in the operation of "complete castration," and supposed that Horus made a "complete" eunuch of Set. This myth reminds one of a somewhat similar story among the ancient Greeks, that the god Chronos castrated his father Ouranos, performing the operation with a sickle made of diamond.

MORE MODERN TIMES.

As long as the Roman power remained confined to the Italian peninsula we do not find any conspicuous employments of eunuchs, though they doubtless appeared there to some extent on the Phœnician and Carthaginian trading vessels, but as the imperial power spread eastward it began to be permeated with these intriguing agents of orientalism. Among the earliest of these immigrants were the priests of the goddess Cybele, from Asia Minor, who were required by their religion to be eunuchs. In process of time various talented eunuchs exerted great influence in the affairs of government. One of them named Hermias became governor of a province in Asia Minor. The great philosopher Aristotle celebrated the fame of this Hermias in a poem which is still extant, and offered sacrifices to his manes. In the "New Testament" (Acts, 8: 27) mention is made of "an eunuch of great authority under Candace, queen of the Ethiopians."

While the capital of the Roman Empire was at Constantinople, under the Emperor Justinian, an eunuch named Narses, born in the Armenian part of Persia, arrived and took service under the Emperor, where he gradually attained very high rank and influence. After a series of years an insurrection broke out in Constantinople which the imperial guards and troops were unable to suppress. Narses, backed by a large sum of money, got interviews with the leaders, bought them up, and by his skill and adroitness put an end to the whole trouble. Some time later the Goths overran and conquered nearly the whole peninsula of Italy. After many failures by the Roman generals, Narses was put in command of the army, and in two campaigns he drove the Goths completely out of the peninsula. This occurred in the years 552–553 A. D. He proved himself a military commander of great energy and talent. Narses was not the sole example of executive capacity among his class. There were frequent occasions when the eunuchs were all powerful at the imperial court both in Rome and in Constantinople. (*Grand Dictionnaire Universelle du XIXe Siècle*).

THE POSITION OF THE CHURCH.

Very early the church authorities began to discourage the barbarity of castration, but individuals to some extent favored it. The Patriarch of Alexandria was annoyed in the third century by a small party of fanatics named Valesians who defied his authority, and taught that castration was necessary to salvation. The celebrated Christian writer, Origen, born about 185 A.D., who was the first strong intellect to reduce Christian doctrines to something like a philosophic system, conceived that his usefulness would be greatly increased if he were an eunuch. He therefore caused himself to be castrated, which act he greatly regretted in after life. The Patriarch of Alexandria disapproved of it, and refused to admit him to the priesthood. Origen then went to Palestine, where the Sub-Patriarch of Jerusalem admitted him. Origen afterward founded a very celebrated Christian school or seminary.

At Constantinople there seems to have been no prevailing objection to eunuchs, for Nicetes, Photius, Ignatius and Methodius, all eunuchs, were made Patriarchs. However, the general sentiment grew steadily stronger against these mutilations until in 325 A.D., the celebrated Council of Nice prohibited the admission of any more eunuchs to the priesthood. The practice of making eunuchs, however, never fully died out from the laity, and when the Mahommedans conquered all the territories of the Eastern Empire they gave a tenfold impetus to the nefarious business of mutilating children to produce harem guards.

In Italy the Mahommedans got no permanent foothold, but a small clandestine business had existed ever since pagan times of making male soprano singers by castrating boys before the change of voice, which occurred at puberty. These male soprano singers were bought at high prices or employed in the opera houses and in some churches. Some of the popes forbade their admission to church choirs, but the underclergy did not fully obey them. Even down almost to the present time they were employed in the Vatican choir at Rome, but the present pope early in his reign put an end to the scandal and forbade the further use of eunuchs in the Vatican choirs. This prohibition, combined with the public sentiment of Italy has pretty well extinguished the infamous business, though Italian physicians say that a few eunuchs are still clandestinely made in defiance of law.

In the Turkish Empire most of the eunuchs are furnished by the monastery called Abou-Gerhè in upper Egypt, where the Coptic priests castrate Nubian and Abyssinian slave boys at about 8 years of age and afterward sell them to the Turkish market. Turks in Asia Minor are also partly supplied by Circassian eunuchs. The Coptic priests before mentioned perform on the stronger part of the children what is called the "complete" operation. That is, they cut away the whole scrotum, testes and penis. The mortality of the operation is said to be very great. Clot Bey, chief physician of the Pasha, said that only one in three survived. Chardin stated that only one in seven survived. Dr. Dadirrian of New York, who practiced thirteen years in Constantinople, says he had no means of ascertaining the mortality during his residence in Turkey. Owing to so many dying on their hands, the survivors have to be sold at very high prices to cover the loss. This large proportion of deaths shows gross surgical ignorance and incompetency and the technique of the operation, unless recently improved, is very barbarous. I presume aseptic measures are among the things unknown in that quarter.

In Hindustan eunuchs are abundant among the Mohammedans of the Northwest provinces. A physician who had lived there did not think that they were common among those of other faiths. However, the *Indian Annals of Medical Science* reports them as numerous in Southern India, where they are called Kojahs.

In China eunuchs have existed for ages. The emperor has a retinue of them, which if full would number 3,000, but as a fact there are at present only about 2,000. They perform the work of the household and are divided into forty-eight classes under proper officers. All the emperor's sons and sons-in-law are obliged to keep from thirty down to four eunuchs each. Most of these servants were castrated by their parents (not always poor) between the ages of four and eight years, because it insures the children a career in which they can get a good living (Williams' "Middle Kingdom," Vol. 1, pp. 407-8).

Russia.—There are large tribes of Mahommedans in portions of Russia whose higher classes employ eunuchs, considerable numbers of whom are sold, or at least sent into Turkey, where also many Circassian marriageable girls find homes in the harems. Among the Russian Christians a secret sect or society has lately been discovered who clandestinely practice castration. They are called *Skopzi*, a word which signifies castrated.

Australia.—Reputable authors assert that the wild natives limit the increase of families by crushing the testicles of the father after his first child is born. I have not been able to verify this assertion. The plan of crushing the testicles coincides with the "squeezed" testes mentioned in Deuteronomy: xxiii; 1, and marked with disapproval by exclusion from the congregation.

PHYSICAL EFFECTS OF CASTRATION IN MAN.

Eunuchs made such in childhood grow taller and have larger frames than average men. They are also fatter. The hair of the pubes and of the face does not grow. The result is that the cheeks are round and prominent, the chin is apt to be double, and there is no beard. Those in whom the penis is removed use a tube to assist micturition. This is probably for two reasons: 1. To convey the urine clear of the person and of the clothing; 2, to prevent the contraction of the cicatricial orifice, which, unless attended to, is in some patients prone to form a stricture. It is thought that eunuchs, like women, are less subject than men to the occurrence of stone in the bladder, and when old they are doubtless all free from senile hypertrophy of the prostate gland.

The effect on the voice.—A boy's voice below the age of puberty is at about the same pitch as that of a woman, but as puberty comes on "the voice changes," that is, it lowers its pitch as the vocal cords and the larynx enlarge, and in about two or three years is found an octave lower than that of the woman. Hence it is a favorite practice in some churches to have boys instead of women to sing soprano and contralto, and to those who care only for the pitch and not at all for the "timbre" of the voices the result is fairly good, but trained auditors are not fully satisfied. I have listened to some of the best boy choirs in this country and Europe, who rendered the pitch perfectly, but the quality, the timbre as it is called, never attains the richness and flute-like splendor found in the adult woman. The fact is the boy's voice is never a true soprano. If a vocal teacher of a large class will separate the boys from the girls and have them sing alternately he will instantly perceive that the girls sing in a flute-like tone, while the boys' voices have a slight clarionet quality, a kind of vibrant character, the forerunner of the trumpet note of the coming man's voice. Eunuchs preserve the high pitch of the boy's voice and often make effective singers, but yet it is the vibrant boy tone, a voice slightly mixed with the reedy clarionet timbre. There is no truly pure and glorious soprano to be had on earth except from a woman's voice. Yet some of the eunuch vocalists were very fine. Those who heard the Vatican choir some twenty-five years ago may remember a stately, almost gigantic, eunuch soprano with a voice of great sweetness and tremendous power. Still it was vibrant and not a pure flute tone, but it was excellent. He was probably the last of his kind to lift up his voice in the Vatican.

MENTAL EFFECTS OF CASTRATION.

I have not found in ancient writers any tendency to stigmatize eunuchs as feeble-minded, but modern authors indulge in the most absurd and contradictory statements on this subject.

The effect on sexual desires.—Some writers assert that if castrated young the eunuchs remain perfectly indifferent to female attractions, and articles are often written in medical journals advocating the castration of sundry criminals in adult life under the assumption that their sexual temptations will all be removed by the simple ablation of the testes. The Turks, however, have no confidence in that kind of moral reform. They require that their eunuchs shall be castrated in childhood, and that the operation shall remove scrotum, testes and penis all at one fell sweep. The Roman poet, Juvenal, alleged that in simple castration of the testes the eunuch, excited by "soft kisses," could still obtain an erection and gratify his desires, "without there being any necessity for an abortion afterward" (Satire vi, 366).

The fact appears to be that men castrated in adult life often retain a troublesome amount of sexual desire, and that even if it is done in childhood there is by no means a total absence of it, though it is much lessened.

Moral qualities.—Here come in a host of contradictions by careless observers. The Persians, Assyrians and Romans evidently entrusted the highest responsibilities to their eunuchs with success, which implies that they were not at that time weak, deceitful and corrupt beyond other men, as those of Turkey are now accused of being. I suspect the difference in training had much to do with the contrast in results. According to the book of Daniel, the king of Babylon sent the chief of the eunuchs to select boys from the best of the families of his captives. They were removed to the royal palace and apparently supported, educated, trained and carefully brought up to become counsellors and officials of the empire, and if any or all of them were made eunuchs, they might be expected to be very different from the Nubian negro boys now bought and castrated for market by the Coptic priests. However, I have not been able to ascertain what degree of training and culture is actually given to these young negro eunuchs. "Le Grand Dictionnaire Universelle du XIXe Siècle," says of them: "They get ahead by servility and not by talent." The "Cyclopedia of Religious Knowledge" says: "Eunuchs are jealous, intriguing, shameless, peculiarly subject to melancholy, and many commit suicide." Smith's "Dictionary of the Bible," in the article on eunuchs, says of them. They are full of "a blind, malignant jealousy. They are defective in courage, gentleness, shame and remorse, and develop malice, melancholy and a tendency to suicide." The "blind malignant jealousy" attributed to eunuchs seems absurd. Of all men in the world, why should an eunuch be jealous?

Dr. Dadirrian of New York, a highly educated Armenian physician, who practiced thirteen years in Constantinople, and knows many eunuchs, says: "To my knowledge they are brave, faithful and accurate in their duties. The Chief Eunuch can always communicate with the Sultan personally and is held almost equal to the Grand Vizier. The eunuchs' position is always very high and the ladies of the harem treat them very kindly. They are melancholy, not from ill treatment, but because they feel their isolation and deprivation of manly enjoyments." Dr. Dadirrian says that the common statement that they are malignantly jealous is an amusing blunder of western travelers, who do not understand the laws and etiquette of Constantinople. The truth is this: When any of the ladies of the harem go out to ride, one or more eunuchs go with them as protectors, sometimes on horseback, sometimes on foot. Now in Constantinople it is a serious insult to any royal lady, and through her to the Sultan, to stare intently at her in passing. The eunuch's official duty is to protect her from that or any other insult by instantly attacking the offender, whom he may beat or even kill, and no questions will be asked. Western travelers seem to have supposed him to be actuated by "malignant jealousy." The fact is there is no more personal jealousy in him than there is in a paving stone. He is simply doing his official duty as a harem guard, and he takes pains to execute it with such an appearance of alertness and force as will satisfy any imperial spy that may be watching him that he is an officer who understands his business and guards his ladies with what a Yankee would call "vim and snap." By continuing to do this he hopes to stand well at the palace as a protector of the ladies and to obtain future promotion.

The modern eunuchs grow up and live in a very bad moral atmosphere, but so far as I can unravel the contradictory statements about them I conclude that if we except their weakened sexual emotions, their powers of mind are as strong and their morals as good as those of other men brought up under similar training and surroundings.

In gathering such of the above facts and references as are derived from the monuments and dead languages of the far East, I am indebted to the kindness and assistance of the Rev. Simon J. Pherson, D.D., Rev. Emil G. Hirsch, Ph.D., LL.D., Professor Carrier of McCormick Seminary, and Professor Breasted of the University of Chicago.

3912 Lake Avenue.

SYPHILIS.

A Clinical Lecture to Members of the American Medical Association,
Delivered in the Medico-Chirurgical Hospital of Philadelphia.

BY JOHN V. SHOEMAKER, M.D., LL.D.
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PHILADELPHIA, PA.

I have present today several well marked examples of constitutional syphilis. I bring them before you not because they are rare types, but because they collectively represent some of the most characteristic phases of the disease.

MACULAR SYPHILIDE.

This young man, 22 years of age, contracted a chancre three months ago. The period of incubation was sixteen days and the lesion lasted three weeks. Nine weeks and a half after inoculation, having regarded himself in the meantime as entirely well, he noticed that his hair came out when he used the brush. He also found a few small scattered papules upon his scalp. The hair has continued to fall and is now quite thin. The papules are of a coppery color. Upon his back and sides I observed what the patient had not yet detected, viz., a macular eruption. There have been no osteocopes or noticeable fever. His throat has felt sore for several days past. The mucous membrane is erythematous and there are two or three minute erosions.

This case illustrates several points in connection with syphilis. The manifestations are mild, they have existed but for two and a half weeks and there is a a distinct history of infection. An admitted exposure followed sixteen days later by a single sore upon the penis, the presence of small, hard and painless inguinal enlargement, loss of hair, an eruption upon the skin and soreness of the throat can signify nothing else than syphilis. The sore upon the penis was undoubtedly a chancre. Yet he tells me that after the lesion was healed he thought that he was completely cured. He was not aware that there was any relationship between the chancre and secondary outbreak. He had not perceived the exanthem. Now, unless he be sufficiently instructed as to the beginning and persistent nature of the malady which he has unfortunately contracted, and submit himself to a thorough, systematic prolonged course of treatment, he will be subject to frequent relapses and become a menace to every one with whom he is brought into intimate contact. On the contrary, if after its importance is explained to him, he will faithfully regulate his habits and conform to instructions, the present manifestations will rapidly disappear and he will eventually be cured.

The predominant rash upon the body is macular, but the polymorphous character of syphilis is shown by the coexistence of small papules upon the scalp and shoulders. He has come to us in good time. In a few days without treatment the erosions of the mouth would become distinct syphilitic ulcers. He shall be warned as to the manner in which he might communicate the disease to innocent persons, and be placed at once upon the protiodid of mercury. As he is a robust individual I shall combine with the specific the tartar emetic and a small dose of powdered opium, as:

℞ Antimonii et potassii tartratis. . . . . gr. v. | 32
Hydrargyri iodidi viridis . . . .
Pulveris opii . . . . āā gr. xv. | 96
M. et ft. pilulæ No. LX. Sig.—One pill three times daily.

The antimony favors the action of the mercurial and the opium restrains its influence upon the bowels. At the end of a week the patient shall be directed to take a fourth pill at bed time. At the end of three weeks the tartar emetic shall be discontinued and the green iodid be given continuously for three or four months. At the expiration of that period if no manifestation of disease are present the drug may be advantageously suspended for two weeks, or at least given in diminished doses, as one-sixteenth grain twice a day. The full dose is then resumed for another period of three or four months. After the lapse of a year the specific may be discontinued for a longer interval. In this manner by promptly producing a decided mercurial impression and subsequently suspending or diminishing treatment during stated intervals, the virus of the disease will in most cases be totally eradicated by the end of the second year. The opium need not be continued uninterruptedly. Some writers deprecate its use and advise a combination with tannic acid or the administration of mercurious tannate. A small dose of opium, however, will prevent intestinal pains as well as check diarrhea.

When mercury is given in this guarded manner it seldom excites ptyalism. A serviceable precaution also to observe in this connection is scrupulous care of the patient's mouth, which should be frequently cleansed with mild astringent and antiseptic mouthwashes.

The form in which the mercurial is given is of minor importance provided that enough be absorbed to antagonize the disease. The tiny ulcers within the mouth may be effectively touched with solutions of nitrate of silver, nitrate of mercury or sulphate of copper of suitable strength. The patient should abstain entirely from tobacco and alcoholic liquors. A stimulant hair tonic will facilitate the return of the hair. All local treatment, however, is simply accessory.

MACULAR AND PAPULAR SYPHILIDE.

A second man, 23 years of age, exhibits an abundant, symmetrical, copper colored, polymorphous rash upon the trunk and limbs. There is a predominance of small papules, but macules, large papules and pustules are also present. Prior to the evolution of the rash the man suffered from headache and aching pain over the upper part of the sternum. He has of late lost eighteen pounds in weight. He has a sore throat of the erythematous type. The patient contracted a chancre two and a half months ago, and the sore was treated at that time in our dispensary service. The eruption has been present for about five weeks. There are enlarged glands in each groin. The rash is attended by some itching, especially in the evening. Absence of itching is given as one of the diagnostic signs of a syphilide, but the rule, though general, is not absolute. From time to time I meet with a case of itching syphilide.

This case is of some individual interest in contrast with that of the first patient. In both instances the infection dates from nearly the same time. The disease, however, has made more rapid progress in this case, probably owing to the social conditions and habits of the young man. Though the small papular syphilide develops not much later than the macular, yet the large papules and pustules usually belong to a later period. When pustules occur early in the course of syphilis they generally indicate decided constitutional depression.

The treatment of this case will be conducted upon the same principles as the first. A mildly astringent gargle will be ordered, not as having direct therapeutic value but for the reasons already given. On account of the progress which the disease has made I will make use of the corrosive sublimate, as:

℞ Hydrargyri chloridi corrosivi . . . . . gr. iij | 20
Glycerini . . . . ℥ j | 32
Syrupi sarsaparillæ compositæ. . . . . . ℥ iij | 96
M. ft. sol. Sig.—Teaspoonful three times a day.

TUBERCULAR SYPHILIDE.

A young man, 24 years of age, entered the hospital on account of a tubercular eruption which has affected a large part of the body for the last two years. The lesions began upon the face and at first were small. They are at the present time of various sizes, solid and semisolid in consistence. Many of them have broken down to form ulcers and a number of cicatrices are seen upon the face. In other places the eruption is in more active progress, ulcerated lesions appearing upon the surface.

This case differs altogether from those which I have already brought before you today. The man professes, and I see no reason to doubt his word, ignorance of the manner in which the disease was acquired. The lesions have been steadily growing worse for some time and cause him great distress of mind. He is extremely anxious to be cured and perfectly willing to throw all the light he can upon his case. However, he knows nothing of its origin. At his age the history can not be obscured by the mists of time. In old "rounders" of forty and more, who have pursued a course of venereal alcoholic dissipation, in whom syphilis has never been cured but recurs in various guises from time to time, we often fail to obtain any definite history of the origin. Chancre, chancroid and mucous patches have upon different occasions involved the virile organ. It is almost a hopeless task to endeavor to distinguish an orderly and characteristic sequence of events. Tubercles, rupia and gummata point nevertheless to a syphilitic origin. We feel that we can make no mistake in adopting specific combined, it may be, or alternating with tonic treatment. Here, however, we have a patient in the flower of youth as far as mere years count. It does seem strange, indeed, that there is no reminiscence of primary disease. The man has been an industrious mechanic and has not been given to sexual excesses.

If I have seemed to assume the diagnosis it is because I have already had the opportunity of convincing myself of the nature of the malady. In fact what other disease than syphilis could cause such lesions? It is possible to form an opinion by exclusion. Tubercular lesions are common to syphilis, lupus vulgaris, lepra, carcinoma and certain rare forms of cutaneous disease which need not here be taken into consideration. Leprosy need not long engage our attention. A stray case is now and then seen in Philadelphia, it is true, but the patient is a foreigner or one who has lived abroad. Leprous tubercles grow more slowly than those of syphilis, occasion a more hideous deformity, and moreover are characterized by more or less anesthesia. Lupus vulgaris generally begins before the twenty-second year, the tubercles are small and soft; the ulcer of lupus is superficial as a rule, and the scales are thin. Rarely in lupus should we see so disseminated an eruption. Cancer may be thrown out of question on account of the youth of the patient, the number and distribution of the lesions.

The diagnosis established, the next point concerns the treatment. The tubercular eruption belongs to the tertiary stage. As a general rule it is benefited by the administration of the corrosive chlorid of mercury combined with potassium iodid. There are, however, cases now and then encountered which prove unamenable to such a course. In such instances I have often derived benefit from the use of vegetable alteratives and tonics given until the secretions have improved. The specific treatment can then be resumed with greater advantage. In this case I shall adopt, provisionally, the method which is ordinarily attended by success, and prescribe:

℞	Hydrargyri chloridi corrosivi	gr. iss	10
	Potassii iodidi.	ʒ iij	12
	Syrupi zingiberis	℥ j	32
	Aquæ	℥ iij	96

M. ft. sol. Sig.—Dessertspoonful three times a day.

MOIST PAPULES.

In a fourth patient, likewise a male, 25 years of age, syphilis displays itself principally upon the mucous membrane of the mouth, leaving the skin almost intact. There are a few papules and pustules upon the back, and presumably from the man's somewhat indistinct account there has been a generalized eruption. He has been afflicted with sores in the mouth and upon the tongue for the last three months. There is no history of primary disease. He is not conscious of ever having had a chancre, but about a year ago he suffered from an attack of gonorrhea. Coincident with the attack the inguinal glands enlarged but did not suppurate. Shortly afterward he lost much of his hair and also had sores in the mouth. It is probable that he had a urethral chancre coexistent with the gonorrhea. At all events the history is well nigh conclusive as to syphilis infection, and it is strongly corroborated by the clinical evidence. Upon the roof of the mouth is a typic mucous patch, and ulcers are seen upon each side of the anterior half of the tongue extending nearly to the tip. There are also one or two just within the angle of the mouth. The moist papule, mucous papule, mucous patch or condyloma, for it is known under all of these names, is the analogue of the large flat papular or lenticular syphilide. Under the influence of the heat and moisture of mucous cavities this lesion is modified in its aspect and mode of growth. It flourishes within and around mucocutaneous outlets. The term "mucous patch," by which it is perhaps most generally known, is appropriate, inasmuch as it is frequently due to the coalescence of adjacent papules. Around the outlet of the anus and vagina these lesions may assume large proportions and a most repulsive appearance.

I have said that upon the roof of the mouth is a typic mucous patch. Now a mucous patch is characteristic only of syphilis. It occurs in no other disease. Nor is it usually difficult to recognize. This lesion is generally raised a little above the level of the surrounding surface, though in some cases it is depressed. Moist papules are soft and smooth; sometimes they are of a deep red color and again they are grayish, as if the surface had been touched with nitrate of silver. They are sometimes the seat of luxuriant papillary outgrowths. Mucous patches may develop between the toes, in the groins and about the umbilicus.

This lesion is one of the most constant of syphilis. It exhibits an inveterate tendency to recurrence. Long after all marks of the disease have disappeared from the skin we may, to our disgust, witness the return of the mucous patch. So notorious is this characteristic that Jullien, with that epigrammatic terseness so highly valued by French writers, and which is so emphatic, declares the average course of syphilis to consist of a chancre, a macular rash, mucous patches, relapses of mucous patches, more mucous patches.

The same disposition to recur is seen in the small ulcers so common in the mouth during the secondary period. Much of this obstinacy depends upon irritation due to tobacco, alcoholic drinks, and carelessness in the toilet of the mouth.

Another peculiarity makes the mucous patch remarkable among the lesions of syphilis. Next to the primary infecting sore, the chancre, it is most responsible for the spread of the disease. It is the great source of extra-genital syphilis. Innocent embraces and lascivious dalliance alike spread infection when mucous patches are present in the mouth.

Local treatment expedites the cure of mucous patches or rather, I should say, their suppression, for they are never entirely cured until the disease which produced them is extinct. Solutions of silver nitrate, copper sulphate and mercuric nitrate are among the most justly prized applications. The official solution of mercuric nitrate, diluted with eight to twelve parts of water is often of speedy benefit, and I will make use of it in this case. In advanced secondary syphilis Gibert's syrup is an excellent remedy. This combination consists of the red mercuric iodid or biniodid, together with potassium iodid. It may be thus ordered:

℞	Hydrargyri iodidi rubri	gr. j	06
	Potassii iodidi	℥ ss	16
	Aquæ destillatæ	ʒ ij	8
	Syrupi . . . . q. s. ad.	℥ vi	196

M. ft. sol. Sig.—Dessertspoonful three times a day.

This patient shall be forbidden to use, above all to chew, tobacco. He should also avoid spiritous liquors. Every subject of mucous patches should be informed of the danger that he may spread the disease by kissing, common use of table utensils, etc.

In unusually obstinate or in "galloping" syphilis we may advantageously have recourse to other methods. Our aim being to saturate the blood rapidly with the antidote we may have recourse to mercurial inunction or to hypodermic injections. The former procedure is no doubt efficacious, but it is in many respects inconvenient to carry out in private practice. Hypodermic injections are cleanly and avoid the publicity which is so apt to attach to inunction. A host of mercurials have been recommended by different writers. I have had a large experience with this method of treatment and believe that no preparation surpasses the bichlorid in efficiency. I dissolve 4 grains of corrosive chlorid in an ounce of water and inject 5 minims of this solution, increasing the dose minim by minim every second or third day until improvement or a constitutional effect of the mercury occurs.

SOME OBSERVATIONS ON THE TREATMENT OF TABES DORSALIS.

BY DANIEL R. BROWER, A.M., M.D.

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CHICAGO, ILL.

The treatment of any disease, as a matter of course, is largely based upon its pathogenesis; and while we may safely assume that at least 90 per cent. of the cases of tabes dorsalis have an antecedent syphilitic history, yet it is not a true syphilitic disease, for in the remaining percentage of cases other etiologic factors are at work, among which are trauma, the acute infections, alcoholism, and the auto-intoxications, so that we may call the disease rather a degenerative sequela of these various processes, and we know not whether the disease begins in the neurons, in the connective tissue, or in the blood vessels. But let it begin where it may, the resultant is a sclerosis terminating in hypertrophy of the connective tissue and a destruction of the sensory neurons of the spinal cord. I am of the opinion that with many a too gloomy prognosis is made. In my experience the arrest of the disease is not infrequent, when the treatment is commenced in the pre-ataxic stage, and considerable improvement is possible even when the second and third stages of the disease have been reached prior to its commencement. The disease does not always interfere with the very successful use of the inherent powers of the patients. I have one patient who, since the pre-ataxic stage began about twenty years ago, has carried on a large manufacturing concern, employing at times several hundred men, and has accumulated a large fortune. I have another patient who, since the disease began about fifteen years ago, has attained eminence as a lawyer and as a politician, and has been the Governor of a great State, and is still in the active pursuit of his profession.

Treatment.—The first consideration in the treatment is the climate, and whenever it is practicable, as it often is in a great country like the United States, a warm, dry, equable climate of low level or moderate altitude should be selected as the place of permanent residence for the patient.

If the case is not advancing rapidly, an ocean voyage, giving the maximum amount of fresh air with a minimum amount of exertion, is often beneficial. I am in the habit of recommending to my Chicago patients, when possible, to spend two or three of the spring months in the Ozark Mountains of Missouri, in the mountains of North Carolina, or in a similar moderate altitude; or at Atlanta, Ga., or Los Angeles, Cal., or in similar low level climates, thus avoiding the cold and dampness and exceedingly variable climates of this season of the year in this locality.

The next important consideration is rest. When the disease is advancing rapidly, absolute rest in bed, with daily massage and the faradic exercise of the muscles is indicated, and this may often be continued with advantage for six or eight weeks, and then patients gradually resume their ordinary avocations; and in every case I think a portion of each day should be spent in the recumbent position. I advise business men to provide themselves with a lounge in their office, and spend at least one hour in the recumbent position, and in this position they can transact much business, and at the same time give rest to the spinal cord. Excessive mental work and physical fatigue should be avoided; sexual excesses are especially harmful and seem to contribute to the production of optic nerve atrophy; whatever exercise the patient takes should always stop short of fatigue. Traumas being of serious consequence, especially concussion of the spine, should be avoided with great care. The training of the muscles in the work of co-ordination, as proposed by Fraenkel, I endorse, and advise various exercises, such as he proposed, for an hour or an hour and a half daily, and it is surprising what amount of power of co-ordination will be regained by the judicious following of this teaching.

The gastro-intestinal tract demands special attention; lavage and bowel irrigation are often indicated. Gastric crises are provoked by indigestion and colonic impaction. Food, therefore, should be easily digested, and constipation should be avoided. A change of life from one of activity to one of inactivity, forced upon the patient by the disease, tends to develop gout in those who are predisposed to it, and this should be constantly borne in mind and the diet regulated accordingly. Excesses in alcoholics and in smoking should be avoided. Electricity, especially the static form, from a machine of high potential, by insulation and by heavy sparks from the spine and lower extremities, is usually of very much service. Faradization of the skin by the wire brush electrode is also beneficial. These two forms of electricity, in my judgment, are very far superior to galvanization. When the bladder or its sphincter is weak faradization of this organ is often of service.

Suspension, first brought to our notice by the Russian physician, Motschutkowski, is of service when the disease is advancing after a more or less lengthened stationary period. I am sure that it is of service, although the practice is being abandoned by a great many. Stretching the sciatic nerves by manipulation, in the same class of cases gives results somewhat similar to suspension. Cold or tepid baths at a temperature not to exceed 96 degrees F., especially with jet or shower accompaniments, are useful. A hot bath, in my judgment, is often very injurious.

In those cases of tabes dorsalis in which the symptoms have developed very rapidly and the syphilitic infection is recent, vigorous antisyphilitic treatment is beneficial, and it should consist in the largest possible doses of the iodid of potassium together with the hypodermatic use of mercury. But in those cases of locomotor ataxia where the development has been slow, and where a long interval has elapsed since the primary symptoms occurred, I am sure that this form of medication often does great harm. An alterative on which I place the greatest reliance in the chlorid of gold and sodium. I think that this drug has some power in arresting the progression of connective tissue hypertrophy in the spinal cord, as well as in the liver and kidneys. I am in the habit of giving this drug in the tenth of a grain doses (.006 gram), three times a day, and usually combine it with the resin of guaiac (.18 grams). Chlorid of gold and sodium is a very unstable drug and great care should be exercised in its preparation by the pharmacist and in its administration by the physician. It is my practice to have the drug rubbed up dry with the pulverized resin of guaiac placed in capsules, and given one hour before meals; or, in more urgent cases, I have it prepared freshly in solution and use it hypodermatically, thus hoping to avoid by the one method or the other the destruction of the drug in the stomach. This drug being a tonic, as well as an alterative, it is indicated in the several stages of the disease and may be continued with advantage for months at a time.

The next drug upon which I place reliance is a preparation of phosphorus, and for this purpose prefer the phosphid of zinc. This I give in the eighth (.008 gram) or tenth (.006 gram) of a grain doses, three times a day after meals. As a tonic and alterative, in alternation with the above I use arsenic, preferring the arsenate of sodium in about the twelfth of a grain (.0054 gram) doses, to any other of the preparations of arsenic.

When the disease has taken upon itself a rapid developmental state, full doses of ergot with the rest before indicated will sometimes stop the rapid progression of the disease. For the pains I have found that extract of cannabis indica, injections of cocain, and acetanilid alone, or in combination, are the most successful. I have seen no especially beneficial results from the use of nitrate of silver, aluminum chlorid or of mercury in ordinary cases, and my experience is emphatically against the use of strychnia in this disease. I am very confident that I have seen more than one case very greatly injured by the use of even ordinary doses of strychnia.

GUMMATA OF THE HEART IN A CASE OF CONGENITAL SYPHILIS.

FROM THE PATHOLOGICAL LABORATORY OF RUSH MEDICAL COLLEGE.

Read before the Chicago Pathological Society, Jan. 11. 1897.

BY E. R. LeCOUNT, M.D.
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The following case is of interest as an instance of a lesion observed very infrequently, viz: gummata of the heart as a feature of congenital syphilis.

A child born at term, of young parents, died almost immediately following birth and was sent to the laboratory of Rush Medical College by Dr. A. B. Strong, of Chicago, in whose practice the case occurred and to whom I am indebted for the opportunity of making the examination.

Autopsy Abstract.—Weight 2,500 gm., length 50 cm.; the umbilical cord showed a recent ligature. The external surface of the body was the seat of a vesicular and pustular inflammation, most marked over the face, hands, feet and buttocks. The contents of these eruptions, although generally clear, were occasionally seropurulent and less often of soft, cheese-like necrotic material. The peritoneum was normal and its cavity empty. The thymus weighed 7.5 gm., and possessed several softened areas containing gray viscid pus.[1] The thyroid, submaxillary and parotid glands were normal in appearance except for an excess of blood. The pleural cavities were empty. The lungs contained numerous firm, white nodules, some of them as large as cherries. On section these presented a smooth surface and appeared of equal consistency throughout. The lung tissue was non-crepitant or very slightly crepitant, fairly firm and oozed dark blood. The pleura over the left lower lobe was roughened by an easily removable fibrinous exudate. The liver was engorged with blood and extended to the level of the umbilicus. The spleen was slightly enlarged and congested; the pancreas was negative; the kidneys, stomach, intestines, lymphatic apparatus and the central nervous system all appeared unchanged.

The lines of ossification in both long and flat bones were irregular, wider than normal, and hemorrhagic.

The heart.—On the anterior surface of the heart midway between the base and the apex, involving that part of the ventricular wall which faces toward the left, and also overlapping the ventricular septum, was a white area, quite circular in form and measuring approximately 1 cm. in diameter. The edge of this white area fused gradually with the adjacent heart tissue, and on section appeared less firm than the unchanged myocardium (Fig. 1.) It was seen to involve the entire thickness of the ventricular wall, spreading out more as it approached the pericardium, which was unchanged except as to color. The change in the muscle also extended into the columnæ carneæ of the left ventricle. On the posterior or diaphragmatic surface, near the right border of the heart, were situated three smaller but similar areas.

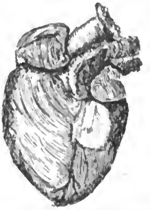

FIG. 1.—Gumma near the interventricular septum.

The heart cavities contained considerable blood partially coagulated. The valves and orifices showed no changes.

Anatomic diagnosis.—Congenital syphilis, syphilitic interstitial pneumonia (nodular); syphilitic osteochondritis; gummata of the heart; pustular syphilides of the skin; multiple abscesses of the thymus; hyperemia of the liver and spleen.

Microscopic examination.—The presence of syphilis was confirmed by the examination of the viscera, characteristic changes being found in the liver, lungs, spleen and lines of epiphyseal ossification. In sections made through the large lesion on the anterior surface of the heart, the following changes were found: Between the heart muscle fibers throughout the area, which to the naked eye appeared white, there existed a marked infiltration of round or partially fibrillated cells, with faintly staining vesicular nuclei. Although the change prevailed throughout it was most marked around the blood vessels (small arterioles). The change here began immediately outside the media, where distorted cells and cells of peculiar shapes, with faintly stained nuclei occurred. These were evidently formative cells, and resulted from proliferative changes in the adventitia (Fig. 2). Occasionally mitotic nuclear figures were here met with.

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[1] The mixed infection which had resulted in this case was investigated by Mr. H. G. Wells and reported by him to the Chicago Pathological Society (Transactions Chicago Path. Soc., Vol. II, 1897).

A marked proliferation of the subpericardial connective tissue had also taken place and the resulting new cells had invaded the heart muscle to a considerable depth. The phenomena observed resulting from leucocytic invasion were: 1. Leucocytes of the polymorphous variety in transit through the vessel wall (Fig. 2). This was distinct and frequent, resulting in, 2, accumulations of leucocytes in the adventitia among the formative cells. 3. The occasional presence of single leucocytes at long distances from the vessels where all changes were slight and, 4, the accumulation of leucocytes in foci in which degeneration and necrosis of heart muscle fibers had taken place (Fig. 3). Not only had muscle fibers disappeared in such areas, but in some foci nuclear fragmentation of all the cells in the center of the focus had resulted and dust-like chromatin elements of the degenerated cells occupied that region. No bacteria were found in these foci of necrosis. Multinuclear cells were present in the perivascular cell increase, but the nuclei of such were closely set together and showed no peripheral arrangement or central necrosis as is so frequent in the giant-cells of acquired syphilis. No changes were found in or about the veins or in the endocardium.

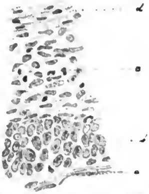

FIG. 2.—Showing the proliferation of the adventitia. *a*, intima of a small arteriole; *b*, nuclei of the muscle cells in the tunica media; *c*, leucocytes; *d*, muscle fibers.

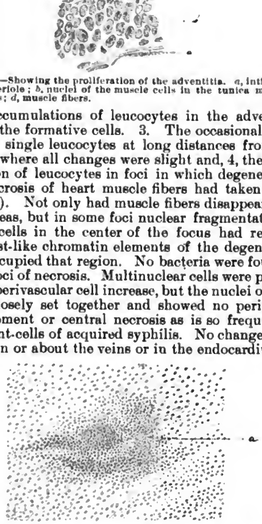

FIG. 3.—Area of necrosis and round cell infiltration. *a*, leucocytes.

The literature on congenital syphilis of the heart has been thoroughly summarized by Ludvig Hektoen in a case recently reported of "Multiple Foci of Interstitial Myocarditis in Hereditary Syphilis" (*Journal of Pathology and Bacteriology*, Edinburgh and London, January, 1896), and a search through the *Index Medicus* revealed no additional cases reported since his summary. The author above mentioned was able to find only nine previously recorded cases of hereditary syphilis of the heart, and these were collated in the well-known treatise by Mraçek.[2] In 112 cases of heart syphilis considered by Mraçek, nine had to do with hereditary syphilis and the syphilitic nature of some of these was doubtful.

Conclusions.—That this is an instance of syphilitic myocarditis is conclusively proven by the changes present in other viscera and the syphilitic osteochondritis. The title of "gummata" is simply a matter of preference; multiple foci of interstitial myocarditis with leucocytic invasion, areas of degeneration of the heart muscle and the occurrence of multinuclear cells resulted in areas which to the naked eye were of limited extent, whitish, and appeared softened, in other words, gummatous.

WHAT WE EAT AND WHAT IT COSTS.

BY D. H. GALLOWAY, M.D.

CHICAGO.

Few of us have any idea of the number of kinds of food which we eat in a year or of their absolute or relative cost. Man is said to be an omnivorous animal and this is generally taken to mean that he eats about equally of animal and vegetable food. The feeding of people collectively, as in the large public institutions, is not a test of the amount and variety of food consumed by the average man nor of the cost of it. Some time ago one of the Chicago papers instituted a prize competition for the best bill of fare which could be furnished for $500 a year for a family of five persons. This brought forward a great many statements of the cost of living. Some of these were doubtless accurate, while many others bore such evidence of inaccuracies as to make them worthless.

There is no question but that some persons habitually eat vastly more than others; one family may eat more expensive food than another without necessarily being better fed; in fact the value of food may be in inverse ratio to its cost. While in college I had a roommate who weighed 250 pounds, which was just about twice my weight. We occupied the same room, were about the same age, attended the some classes and in many ways our habits were similar. We took our meals at a co-operative boarding club of thirty students. Without our knowledge, some of our fellow-boarders kept a record of the approximate quantity of food which we ate in a week and they found that my heavy roommate ate more than three times as much as I did. Obese people are not always extraordinarily large eaters, but they usually are and they eat excessively of heat- and fat-producing foods. Some persons eat too little and keep their vital fires too low, but there are many more who eat too much.

Eating too much food, or food that is unsuitable, or at an unsuitable time or in an unsuitable manner, is the principal cause of the great number of distressing affections which go by the various names of dyspepsia, indigestion, etc., and every physician will testify to the great prevalence of these diseases in this country. Probably more suffering is caused by errors of eating than by the use of alcoholic beverages, enormous as the latter undoubtedly is. Not all they pay for is eaten by every family. The margin of waste in some is a very large factor, while in others practically nothing is wasted. In households where the culinary department is left to servants who are not constantly watched, a larger or a smaller percentage of the food cooked finds its way into the garbage can. Quantities of meat and vegetables, too small to make another meal, are thrown out and stale bread is disposed of in the same manner. In other families these things are gathered up and go into hash or soup for the next meal, while the stale bread returns in wholesome bread pudding or as toast. Material which is wasted in one family often makes a wholesome, nutritious and appetizing meal for another.

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[2] "Die Syphilis des Herzens bei erworbener und ererbter Lues." Arch. f. Dermat. u. Syph., Wien, Ergänzungsheft, ii, 1893.

It is not, however, so much the purpose of this article to show what we might live on as to indicate what we do live on and to present a table which has been carefully prepared from accounts which are accurate and from conditions which approximate those of the average comfortably situated American family. This table is made up from the books of Dr. Bayard Holmes' private hospital. The patients in this hospital were nearly all surgical cases and it is a well-known fact that patients who have undergone surgical operations eat as heartily as laborers during the period of convalescence. With one exception, these patients were all adults. I believe this table represents wholesome diet, adequate in quantity for the average family of equal size. It covers a period of 333 days, from May 1 of one year to March 29 of the next. The average number in this hospital family was 10.67 persons, so that we have listed here food sufficient for 3,582 persons one day or one person 3,582 days. It is equal to the board of 9.813 persons one year or one person 9.813 years. The first column of figures is the amount, where the amount can be given, of the item bought during the 333 days. The second column is the cost of the first. The third column is the amount consumed by one person in one year and the fourth column is the cost of the third. Of course, 158 loaves is not all the bread which was eaten by these ten people in 333 days, but only that which was bought as bread; most of the flour was made into bread in the house. This table is absolutely accurate in the main, though there may be small errors in a few things.

In order to obtain this record, I took the grocer's and butcher's books at the close of each month, checked up each entry and put all items of a kind together on a card. These cards were then ranged alphabetically and copied into a book. An item might appear in the grocer's book twenty times during the month, but it would appear but once in the account, the amount and cost including in one entry the total for the month. Since the numbers in the first column represent the amount consumed by 9.813 persons in one year, the amount consumed by one person is found by dividing the former number by the latter. Practically, I took the reciprocal of 9.813, which is approximately .102, and multiplied the numbers in the first column by this factor to get the numbers in the third column and by the same process the numbers in the fourth column are obtained from those in the second. There are 128 items in the table.

Article.		Amount bought.	Cost.	Amount Consumed.	Cost.
Baking powder	lbs.,	9	$ 4.05	.9181	$ .41319
Barley	lbs.,	4	.21	.4080	.02142
Beef extract	lb.,	1	1.60	.1020	.16320
Bread, 158 loaves		....	10.05	....	1.02510
Breakfast food	lbs.,	206	14.51	21.0120	1.48000
Butter	lbs.,	324	82.81	33.048	8.44662
Butterine	lbs.,	10	1.10	1.020	.11220
Cake		....	1.96	..	.19990
Canned cherries, 5 cans	lbs.,	12.5	.73	1.275	.07446
Canned corn, 57 cans	lbs.,	114	7.40	11.628	.75480
Canned peaches, 6 cans	lbs.,	15	1.00	1.530	.10200
Canned peas, 42 cans	lbs.,	84	7.17	8.568	.73134
Canned plums, 1 can	lbs.,	2.5	.28	.255	.02856
Canned salmon, 53 cans	lbs.,	53	10.60	5.406	1.08120
Canned shrimp, 1 can	lb.,	1	.25	.051	.02550
Canned succotash, 12 cans	lbs.,	24	1.00	2.448	.10200
Canned tomatoes, 74 cans	lbs.,	222	9.35	22.644	.95290
Capers, 1 bottle		....	.18	.102	.01836
Catsup	pts.,	17	4.25	1.734	.43350
Cheese	lbs.,	7	1.30	.714	.13260
Chocolate		.5	.20	.051	.02040
Chow-chow		2	.70	....	.07140
Cider	qts.,	6	.72	.612	.07344
Citron		....	.22	....	.02244
Cocoa		6.5	2.88	.663	.29376
Cocoanut, shredded		....	.68	....	.06936
Coffee	lbs.,	57	21.66	5.814	2.20932
Cornstarch	lbs.,	5	.50	.501	.05100
Crackers	lbs.,	180	24.97	18.360	2.54694
Cream tartar	ozs.,	2	.10	.204	.01020
Eggs		4,536	69.21	462.672	7.05942
Flour	lbs.,	986	24.10	100.572	2.45820
Fruit, apples	pks.,	48	14.28	4.896	1.45656
Fruit, bananas		182	2.14	18.564	.21828
Fruit, blackberries		3	.44	.306	.04488
Fruit, cherries	boxes,	9	.83	.918	.08466
Fruit, cranberries	qts.,	6	.80	.612	.08160
Fruit, gooseberries	boxes,	2	.20	.204	.02040
Fruit, grapes	bskts,	25	7.03	2.550	.71706
Fruit, lemons		621	14.24	63.342	1.45248
Fruit, melons—canteloupes		....	3.24	....	.33048
Fruit, watermelons		18	5.40	1.836	.55080
Fruit, olives	pts.,	6	1.59	.612	.16218
Fruit, oranges		738	19.63	75.276	2.00226
Fruit, peaches	bskts,	22	7.30	2.244	.74460
Fruit, pears		12	.25	1.224	.02550
Fruit, pineapples		17	2.59	1.734	.26418
Fruit, raspberries	boxes,	9	1.65	.918	.16830
Fruit, strawberries	boxes,	84	10.59	8.568	1.08018
Fruit, whortleberries	boxes,	2	.30	.201	.03060
Fruit, dried apricots	lbs.,	16	2.80	1.632	.28560
Fruit, dried currants	lbs.,	3	.39	.306	.03978
Fruit, dried figs	lbs.,	16	3.10	1.632	.31620
Fruit, dried prunes	lbs.,	21	3.43	2.142	.34986
Fruit, dried raisins	lbs.,	12	1.55	1.224	.15810
Gelatin	ozs.,	70	7.00	7.140	.71400
Ginger ale	bottle,	1	.20	.102	.02040
Hominy	lbs.,	5	.20	.510	.02040
Honey	lbs.,	3	.60	.306	.06120
Ice	lbs.,	6,200	31.00	632.400	3.16200
Jelly	lbs.,	13	6.40	1.326	.65280
Lard	lbs.,	74	8.85	7.548	.90270
Macaroni	lbs.,	3	.45	.306	.04590
Matzoon	qts.,	107	24.35	10.911	2.48370
Meats		....	263.12	....	26.83824
Milk	qts.,	3,558.5	208.25	362.967	21.23946
Nuts	lbs.,	16	2.40	1.632	.24480
Okra		....	.18	....	.01836
Oysters	qts.,	25	6.41	....	.65382
Pumpkin pie		1	.15	....	.01530
Rennet		1	.25	.102	.02550
Rice	lbs.,	37	3.70	3.774	.37740
Spice, all-		....	.15	....	.01530
Spice, bay leaves		....	.05	....	.00510
Spice, cassia		....	.05	....	.00510
Spice, celery seed		....	.05	....	.00510
Spice, celery salt		....	.15	....	.01530
Spice, cinnamon		....	.13	....	.01326
Spice, cloves		....	.33	....	.03366
Spice, ess. lemon		....	.35	....	.03570
Spice, ess. vanilla		9	2.00	....	.20400
Spice, ess. ginger		2	.25	....	.02550
Spice, horseradish		....	.30	....	.03060
Spice, mint		....	.25	....	.02550
Spice, mustard		....	.45	....	.04590
Spice, nutmeg	oz.,	1	.10	....	.01020
Spice, pepper		....	.70	....	.07140
Spice, pickles		....	.05	....	.00510
Spice, sage		....	.05	....	.00510
Rock salt	lbs.,	110	1.10	11.220	.11220
Table salt	lbs.,	100	1.00	10.200	.10200
Spighetta	lbs.,	3	.45	.306	.04590
Corn starch	lbs.,	5	.50	.510	.05100
Sugar	lbs.,	671	34.19	68.442	3.48738
Syrup	qts.,	4	.60	.408	.06120
Maple syrup	oz.,	64	.70	6.528	.07148
Tapioca	lbs.,	1	.06	.102	.00610
Tea	lbs.,	15.75	13.52	1.606	1.37900
Vegetables, green, soup bchs		....	.52	....	.05304
Vegetables, asparagus		....	1.73	....	.17644
Vegetables, beans		....	3.16	....	.32234
Vegetables, beets		....	1.22	....	.12446
Vegetables, cabbage		....	.72	....	.07342
Vegetables, cauliflower		....	.25	....	.02554
Vegetables, celery		....	1.20	....	.12244
Vegetables, corn	ears,	222	3.04	22.644	.31008
Vegetables, watercress		....	.60	....	.06210
Vegetables, cucumbers		....	.88	....	.08976
Vegetables, eggplant		8	1.18	.816	.12036
Vegetables, lettuce		....	2.78	....	.28356
Vegetables, onions	qts.,	12	1.12	1.224	.11424
Vegetables, oysterplant		....	.25	....	.02550
Vegetables, parsley		....	1.55	....	.15810
Vegetables, parsnip		....	.02	....	.00204
Vegetables, peas		....	5.00	....	.51000
Vegetables, potatoes	pks.,	120	20.56	12.24	2.09712
Vegetables, Saratoga chips		....	.15	....	.01530
Vegetables, sweet potatoes		....	4.48	....	.45696
Vegetables, pumpkins		....	.10	....	.01020
Vegetables, rhubarb		....	.04	....	.00408
Vegetables, radishes		....	.80	....	.08160
Vegetables, spinach		....	.35	....	.03570
Vegetables, squash		2	.17	....	.01734
Vegetables, tomatoes	bskts.,	44	6.34	....	.64668
Vegetables, turnips		....	.10	....	.01020
Vermicelli		....	.25	....	.02550
Vinegar	qts.,	40	1.13	4.080	.11526
Yeast cakes		237	4.74	24.174	.48384
					111.72262

The following table is a synopsis of the foregoing one. I have grouped the items by classes and arranged them in the order of expense. The amount in the column of figures is the cost of the article named for one person for one year.

Meats (including fish, oysters and lard)	$29.28082
Milk (cream and matzoon)	23.72816
Fruit (fresh, canned and dry)	10.79096
Vegetables (green and canned)	8.50791
Butter	8.44662
Breadstuffs (bread, flour, crackers and cereals)	7.56566
Eggs	7.05942
Coffee, tea and chocolate	5.60876
Sugar	3.48738
Ice	3.16900

Add together the foods of animal origin, meat, milk butter and eggs and a few more small items and we have $69.85516 as the cost of animal food which each one of us eats in a year, against $41.86736 for foods of vegetable origin which we eat in the same time.

It will be seen by reference to the table that in a year the average man eats 33 pounds of butter and pays $8.44 for it, 63 lemons at a cost of $1.45, 75 oranges at $2, uses 632 pounds of ice at $3.16, consumes 363 quarts of milk at a cost of $21.23, 462 eggs at a cost of $7 and 10 pounds of salt at 10 cents. It shows also that we spend as much for oranges as we do for potatoes, and more for fruit than for vegetables.

We paid for rent for each person $72.93. I looked over my private accounts and found that I paid for clothing in ten years (from the time I was 20 till I was 30 years of age) $525.73, an average of $52.57 for each year. Taking these figures as a reasonable average I find that it costs for the three principal necessaries of life as follows: Food, $111.72; shelter, $72.93, clothing, $52.57.

During this time (333 days with an average of 10.67 persons) we used 37,500 matches, 399 bars of laundry soap, 79 bars of cleaning soap and 206 bars of toilet soap. This indicates that each person uses 3,750 matches a year, or more than ten every day, and this is below the real number consumed, as we had one or two thousand on hand when this account began. It will be seen also that each person uses 20 cakes of toilet soap in a year or nearly two each month. This includes bath soap, and in this hospital every patient got at least one bath every day. During the entire time this hospital was under my management there was not sent out of it one pound of garbage nor any combustible refuse whatsoever; nothing but ashes and broken glassware and crockery was put out for the scavenger. Everything combustible was made into bundles with old newspapers and burned in the furnaces both in winter and in summer.

During this period we used 92,000 cubic feet of illuminating gas, for which we paid $99.54, equivalent to 9,384 cubic feet, at a cost of $10.15 per person per year. I have since looked up the amount of gas consumed for lighting purposes by a family of four people and found it to be 38,400 cubic feet. which makes 9,600 cubic feet for each person, and this corresponds very closely with the previous statement.

200 Oakwood Boulevard.

THOUGHTS ON THE APPENDIX.

Read at the meeting of the Middle Tennessee Medical Society, Nov. 18, 1897.

BY S. T. HARDISON, M.D.
LEWISBURG, TENN.

For the last decade the mind of the medical world has been turned to the region of the appendix, and possibly no part of the body has been so often before the profession for attention, both medical and surgical. The professional gentleman who has not had numerous cases of appendicitis to treat has either been careless in his diagnosis and investigations, or has had a clientele that is far behind in medical fads and fancies. The increased frequency of troubles that involve the appendix either primarily or secondarily, has caused much thought and many theories in regard to its treatment both medical and surgical, conservative and radical.

Many learned men of wide experience have espoused the conservative course, but possibly a greater number favor prompt surgical interference. Quite a degree of success has been attained, and many are almost entitled to be called experts in its management, and if failure to bring relief is the result, it is almost always attributable to the lateness of the operation. Indeed, some have advocated the removal of the appendix as a superfluous organ, a menace to health and comfort. Doubtless, this is a wise conclusion if it has no function to perform. When I mention the use of function of the appendix, I am aware of the fact that I am approaching a subject that not only has not been investigated, but one so unimportant and prospectively so barren and uninviting as to forbid investigation. Years have come and gone, medical students with scapel in hand have carefully studied the anatomy of the appendix and have often asked the question, What purpose do you serve in the mysterious make-up and mechanism of this creature so fearfully and wonderfully made? Up to the present moment no satisfactory answer has been returned. Some have suggested that it is a rudimentary appendage, and that possibly man in his early existence had different viscera from what he now has, and as his condition changed, his anatomic make-up changed to keep in harmony with his environments. Another theory is that the troublesome appendix is an accidental formation which never had any mission. I think that both these theories are unsatisfactory and humiliating, and without intent are a reflection on the wisdom, power and goodness of Him who not only doeth all things well, but who doeth all things perfectly. No imperfections can be attributed to Him. No accident can happen to mar His work. And man the last, most wonderful and most exalted of all His creatures could not come from His hands with defects and imperfections that are unknown to the make-up of his inferior creatures. Therefore, I must be permitted to emphasize the statement that the appendix is not a useless appendage, occupying its place without use or function; and while I may not be able to explain to you its function clearly and satisfactorily and demonstrate it beyond doubt or cavil, I do hope to encourage you to examine the matter, and not cast it aside as did the builders of the temple, that stone that was to become the head of the corner, because we already know that the appendage often becomes an important tail on the corner.

Let us look for a moment at the anatomy of the parts. First, we have the valve at the termination of the ileum that prevents almost completely the regurgitation of the contents of the bowels. We have the cecum as a kind of the receptacle or depot, and the ascending colon is indeed an elevator whose power to remove the accumulations in the cecum, opposed by gravitation when in the upright position, smaller diameter, dependent alone upon peristaltic action, and the least failure on its part to do the work produces stoppage and accumulation in the cecum. Now we want more power. The colon, the elevator is ready but no power to put it in motion. The accumulation increases so gradually that the cecum distends slowly until the imperfect valve of the appendix is open, and the contents of the cecum press in. Irritation and stimulation is the result producing contraction and expulsion. This irritation and stimulation is communicated to the cecum, and by its contraction the contents are forced up through the colon or elevator, and the depot is emptied and the appendix closes (if no grape seed or any other hard substance becomes entangled in its valve) and remains quiet and in a restful state, until there shall be a similar demand made on it, to assist in removing undue accumulations in the cecum in a similar way. This would not be necessary if man did not maintain the upright position, hence no animals have an appendix except those that maintain the upright position, viz., the wombat, orang-outang and man. This is a strong circumstance in favor of the position taken. The appendix like any other organ has a limit to its capacity. If overworked and badly treated, it will break down and fail, and instead of performing its functions it will allow the contents to remain in it, producing inflammation resulting in gangrene, not only being destroyed itself but inviting destruction upon the whole body, upon the principle that a little leaven leaveneth the whole lump. This sacred adage has never been more forcibly illustrated than in the diffusibleness of a poison germ originating in or developing in the abdominal viscera.

Another potent factor that neutralizes the function of the appendix, is slow bowels or constipation exercising its influence by the damming-back process closing up the elevator or colon, increasing the demand on the appendix beyond its capacity until appendicitis is the result, and once developed it is almost sure to return. And as slow bowels have so alarmingly increased until constipation to a degree is almost the rule or natural condition of a majority of the people this is an easy explanation as to why appendicitis has grown from a very rare affection to one of remarkable frequency. Therefore, it is not true, that it has always existed to the extent that it does now and was overlooked by our illustrious predecessors, for in all other things they proved themselves the equals of the present day of great and glorious workers in medical and scientific research. Man's habits have changed. In fact the man himself has changed. He once had a large foot and a small head. He used a number ten shoe and a number six hat. He now wants a number seven shoe and a number eight hat. There is less physical exercise and labor for him. There is more mental worry and work for him. He does not go to bed and sleep all night as did his fathers. He does not live on coarse laxative food that required much mastication, developed his teeth and strengthened all his digestive powers. Hence indigestion, constipation and appendicitis were unknown to our ancestors, and would be unknown to us if we had proper food rightly prepared, taken at proper intervals, in necessary quantities, without hurtful stimulants and narcotics and all other things that have a tendency to retard digestion. Then let us not remove the appendix, but let it remain to perform its God-given function.

Let us relieve it and protect it. Take time to eat and time to sleep and to do everything that is necessary to preserve and protect the body, and so far as this life is concerned all will be well.

PHYSICAL DEVELOPMENT OF WOMEN.

Presented to the Section on Physiology and Dietetics at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY HARRIET E. GARRISON, M.D.
DIXON, ILL.

"Our civilization is hard upon the women," remarked a highly cultivated woman as she sat in my office discussing the way by which she could be restored to her usual vigor. This remark was called forth by my insistence upon the statement that nothing but absolute rest would enable the overwrought mind and body to recover their usual tone. The family inheritance of acumen and mental vigor, which had carried a brother to a seat upon the bench of the Supreme Court of our State, had sent the sister into all kinds of philanthropic works. These, and looking well to the ways of her household, had made serious inroads upon a once vigorous constitution.

Our civilization is hard upon women only because they are in a state of transition from the wholly material to the entirely intellectual. When all that was required of woman's brain was to read a little and write sufficient to keep up a limited correspondence, she had strength and energy sufficient to develop into a healthy, hearty housewife and mother. But now our school system demands that every girl, whatever her after-life is to be, must have brains developed sufficiently to write a book, without regard to the effect this may have upon her physical development. And every woman must engage in some kind of benevolent work no matter if she is starving for outdoor exercise, fresh air and sunshine.

Is there much inherent difference between the physical capacity of the sexes? A study of the agricultural laboring classes leads me to think that woman can be trained to as much physical endurance as man. Among the foreign peasants the women work side by side in the fields with their husbands and brothers, usually doing the more laborious part of the work. It is the woman of Germany, who, hitched side by side with her faithful cow draws the plow, while the man takes the less muscular but more intellectual task of guiding it. While on a visit to "the great red pipestone quarry" of Minnesota, as a tribe of indians were taking out their supply of pipe-stone, I noticed that the men cut the stone from the quarry but the women were out along the railroad track splitting discarded ties into fire-wood, and as we drove back to the town we marveled to see the immense load of wood fastened upon the back of each squaw as she returned to the camp. Among our own agriculturists I have been surprised at the amount of endurance displayed by the women. In one case a woman, the mother of four young children, after pitching hay upon the wagon all day endured the pangs of labor all night and called me in the morning; but the fetus had not yet reached maturity and I advised rest in bed after a quieting potion. But as soon as the pains were relieved she got out of bed and did the family washing and then went back into the hay field until the fetus matured, when she was delivered without the aid of an obstetrician. Again I was summoned in haste to find her kneeling beside her bed with the livid face and gasping breath of the extreme anguish of angina pectoris. Hot applications, morphia and heart stimulants soon brought relief and then I found that she was within four weeks of her ninth accouchment. Besides her usual house and field-work she had been milking sixteen cows night and morning. In two days after I saw her she went back to her usual work and in two weeks after her delivery she returned to her place in the dairy. Nor is this an isolated case; there are hundreds of women who enjoy such work.

But these cases are in marked contrast to those we meet among our intellectual women who are semi- or whole invalids from early childhood to the grave. Some of these are born invalids, inheriting neurosis from neurotic ancestors; others have invalidism thrust upon them. While we do not care to have our women become farm laborers, we would like to have them with sufficient physical endurance to do the work, both physical and intellectual, which falls to their share without that constant tired feeling of which so many of them are continually complaining.

I think the late Dr. Frank Hamilton gave us the key to the lack of physical development in our women when he wrote: "Calisthenics may be very genteel and romping very ungenteel, but one is the shadow, the other the substance of healthful exercise. Girls need health as much, nay, more than boys. They can only obtain it as boys do by running, tumbling, by all sorts of innocent vagrancy. At least once a day girls should have their halters taken off, the bars let down and be turned loose like young colts."

If our girls were turned loose to amuse themselves spontaneously, to run up hill and roll down, to skip and jump without rhyme or reason, except as it is supplied by the exuberance of their own innocent natures, there would be less headache in adult life. Only the other day an earnest, conscientious mother asked me about her little girl of seven, whether I thought it just right for her to allow her to romp on the floor with her little baby sister. As the mother expressed the matter, the girl had grown so rapidly she looked very ungainly rolling over the floor. "So much the more need for her to roll on the floor or grass that she may grow in strength and beauty," was the advice I gave the mother. In the tall, rapidly growing girl there is not sufficient nutriment supplied to the muscles to support the trunk in the erect attitude of standing, and rolling gives exercise to various sets of muscles without overtaxing them in trying to support the trunk. Many of our girls with round shoulders and rickety spines would have been saved these deformities had they done more rolling. A few weeks ago I had under my charge a girl of 12 years who was round-shouldered and small looking. She was very sick with la grippe and developed dangerous heart symptoms, for which I confined her in the recumbent posture for two weeks. When I finally allowed her to leave her bed, her mother was astonished at her great increase in height and declared she had grown four inches while in bed. I did not suppose there had been any actual gain as she had not taken sufficient nourishment, in fact she had lost in weight and the increase in height was due to the muscles having become rested and strong enough to hold the body in perfect shape. I advised the mother to have the girl spend half the time in bed until the muscles became more fully developed.

Fresh air, fresh water and sunshine should be the inalienable right of every child in this land of the free and home of the brave, but our women are starving for these very things. Not only are the girls from the sweat-shops and factories, who are shut in for ten or twelve hours where no sunshine or fresh air can reach them, crying Hood's refrain,

"It's O, to be a slave,
Along with the barbarous Turk,
Where woman has ne'er a soul to save,
If this is Christian work,"

but the woman of social position must give at least ten hours daily to her duties, shut in as closely from fresh air and sunshine as her humble sister.

Our school authorities do not recognize the need of fresh air and exercise in the sunshine, with plenty of fresh water, but year after year try to drill into starved brains knowledge, a greater part of which is of no practical benefit to that particular individual. If the State wishes to educate the children let it make the education common. As the schools now stand the privilege is extended to but a small fraction of the children, and these are the ones who least need the State's help. Let our school curriculum be made broad enough to include development of body as well as mind; let the schoolhouses be set away from other buildings with large, surrounding playgrounds. It is not necessary for the schoolhouse to be placed at the door of the scholar's home, but let there be public conveyances to carry the scholars to the door of the schoolhouse.

Nothing which the municipality could do would elevate Mott Street in New York more than for the children to be gathered up every day and carried a few miles into the country by an electric line to a pleasant school building with a ten-acre playground arranged as a park, with hills to climb and valleys to explore, and grounds for all games; with bath-houses and swimming pools, where once a week every child is made to plunge and taught to swim. This can be done with no more expense than our present school system. It may be necessary to shorten the time in which the scholar is the ward of the State, and our sweet girl graduates with their beautiful ribbons, laces and fluffs, with their tired, drawn faces which even "opalin" will not make young and fresh, may disappear, but in their places will come the fresh glad girls, able with their strong, healthy, young bodies to fill every sphere.

With this change must come other changes. Our civic authorities must take cognizance of the physical needs of our girls and provide places, with every facility for reaching them, where girls are incited to healthy exercise with basket-ball and other hardy games. The State levies a tax for free libraries where the girls may be shut in with foul air and with literature as detrimental to their minds as the air is to their bodies. If any one doubts this statement let them look over the list of books most called for in our public libraries. We do not want to banish all public libraries, though there is a class of books which should be banished, but with these supply play places with games and bathing facilities, where every girl can engage in the healthy exercise of swimming. The plea is sometimes urged that bacterial disease is transmitted in free bathing establishments, and so is every book used in a free library covered with germs; and more dangerous germs as they are gathered from the homes of diphtheria and typhus fever. If the water is frequently changed in the bathing pools the danger of contagion is reduced to an infinitesmal quantity. In communities where there are clear running streams there are hundreds of women who never have a plunge-bath from the cradle to the grave; from birth to burial they never know the cleansing which only submersion in clear, pure water can give. Here the fastidiousness of the community prevents the bountiful provisions of nature for woman's physical needs from being utilized; and even boys are fined for yielding to temptation of the pure sweet influence of the running water anywhere within telescopic view of the over-nice passer-by. Verily, those who do not bathe should pay the fines, as the crimes of the community are perpetrated by the great unwashed. To be unwashed for a week should be a crime. Every community too large or cultivated to use primitive bathing methods should provide free bathing facilities within its borders, and the women of the community should be urged to make use of these unless they have private arrangements for plunge-baths. Nature has clearly indicated that to be thoroughly cleansed the body must be submerged in water, even the ears which so many fill with cotton before a plunge will be none the worse for being washed out with pure water.

Let every physician assist in enforcing the law for shorter working hours for women, and urge that their free hours be spent in healthful outdoor exercise, and we will have a brighter, healthier, happier set of women.

A CASE OF VICARIOUS MENSTRUATION FROM THE LUNGS.

BY T. L. CHADBOURNE, B.S., M.D.

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Cases of vicarious menstruation are not rare, but cases of long-standing vicarious bleeding from the lungs are tolerably uncommon.

On consulting the literature one is struck by the small number of such cases that have been reported in this country.

The *Index Medicus* from 1888 to June, 1896, has only about twenty-five distinct references, the *American Journal of Obstetrics* from 1886 less than ten, and the *American Journal of the Medical Sciences* for the same time has but one case indexed.

The chief interest of these cases lies in their connection with the question of tuberculosis. Some of them are mistaken for phthisis, while many of them really are tuberculosis, and only later develop the signs of the disease.

Thomas[1] reports a case of a patient, age 40 years, who, after twenty years of normal menstrual life, slowly began to have hemorrhages from the lungs. She lost weight greatly and had every appearance of pulmonary phthisis. Physical examination showed no signs in the lungs, but disclosed an occluded cervical canal. After operation the patient recovered entirely in six weeks.

Ford[2] reports a case of a patient aged 25 years, who menstruated at 15, at 19 took cold and ever since has had pulmonary hemorrhage for three or four days every month; has not lost weight.

Stuart[3] calls attention to a patient with the following history: Age 15 years; menstruated at 14; tuberculous family history.

The patient suddenly began to have vomiting of blood with occasional hemoptysis. After seven months she developed signs of tuberculosis and a few months later died of this disease.

Stuart calls attention to the fact that, from the first, the case was thought to be tuberculous, although for seven months no signs could be made out.

Kober[4] gives a very interesting case as follows: Age 18 years and 9 months; has never been ill; menstruated for two years.

February 10 she had a slight period and marked hemoptysis; was very sick at stomach. At this time she developed a mild pneumonia behind, below, which resolved in ten days.

March 4, again hemorrhage, nausea and pneumonia. Soon after this, catarrh of the right apex. A third time she had hemorrhage, with other symptoms as before. She died in June, of tuberculosis.

The hemoptysis came on at a time when no suspicion of pulmonary disease could exist, and the author insists that the prognosis in cases of recurring hemoptysis must be very guarded.

May 8, 1896, there came to the Michigan University Hospital a patient for examination of her lungs, as she was thought to have consumption.

The patient gave the following history: Age 18 years, menstruated at 14; one sister dead of spinal disease; no history of lung trouble. The patient has generally been well; three years ago had typhoid; says she has had slight hacking since. For the last year, slight yellowish expectoration, never bloody except as stated below.

Since her eighth year she has had enlarged glands in the neck. These have varied in size, have never suppurated. Have once or twice been favorably influenced by iodin.

Fifteen months ago she took cold, and the next afternoon, during a severe coughing fit, suddenly began to spit blood, which came up rapidly; for the most part rather thick, although some of it was frothy; quantity sufficient to saturate two or three handkerchiefs. Her period was due at this time. Regular flow did not occur, but she continued to spit blood for four days. She missed her next three menstrual periods, but at the times these were due she spat blood, although never so much as at first.

The regular flow then reappeared and was normal for four months, during which time there was no hemoptysis. During the five next succeeding months the hemoptysis again replaced the catamenia. During the last three months the flow has occurred in the normal manner.

The bleeding has usually occurred just at the time of the catamenia, although in one instance last winter it was delayed about a week.

With the hemorrhage she has pain in the chest and a good deal of nausea, both before and afterward. There is no disturbance of the stomach at other times.

She has slight bearing down pains during the first part of her period. The flow is scanty and she is slightly irregular, usually postponing.

Physical examination at this time showed, aside from the enlarged glands in the neck, no anomaly, the lungs being entirely negative.

May 27, she entered the hospital and, during a stay of a week, was several times examined and the following notes were made: Patient undersized; muscles in fair condition; tongue large, with thin white coating; on both sides of neck enlarged glands, varying in size from a walnut to a pea; glands in left axilla also slightly enlarged; they are elastic, not tender, not adherent; skin not reddened. Thorax long, narrow, especially below; of moderate depth; epigastric angle narrow. Lying, supraclavicular spaces are symmetric. Expansion slight but symmetric. Palpation is negative.

Percussion: Good resonance over apices and clavicles, slightly fuller left than right. Further percussion yields good resonance everywhere.

Auscultation: Normal vesicular over both apices; slightly interrupted vesicular under clavicles on both sides; normal vesicular elsewhere; no adventitious sounds.

Heart negative.

Genital tract examined by Professor Martin, who found, aside from a rather small uterus, no abnormity.

Further physical examination negative.

Urine: Small amount, negative.

Blood: Covers show some variation in the size of the erythrocytes; leucocytes 4,200; reds, 4,446,000; hemoglobin (Gowers) 70 per cent.

Although she remained in the hospital a week, no sputum could be obtained.

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[1] Amer. Jour. Obst., XIX.

[2] Amer. Jour. Obst., XXII.

[3] Journal American Medical Association, IX.

[4] Berl. Klin. Wochenschr., 1895.

She was lost sight of till Feb. 2, 1897. She now reports herself as being in good health, weighing fifteen pounds more than last May. During the past summer she twice noticed small amounts of blood in the sputum, not at times of period; probably accidental. Physical examination at this date is again, aside from the enlarged glands, which have changed but little, entirely negative. Menstruation has been regular.

The following points seem worth noting:

1. The patient has had periodic hemorrhage from the lungs for a long time, at least nine times within a period of fifteen months, without having, up to the present date, any demonstrable signs of lung disease.

2. In view of the fact that so many such cases are later seen to be tuberculous, prognosis was guarded, the more so on account of the enlarged glands.[5] The fact that the patient has to all appearance recovered does not make it impossible that she may still have a healed tuberculous lesion in her lungs.

239 E. Town Street.

PRIMARY SARCOMA OF THE IRIS.

A STATISTICAL STUDY, WITH THE REPORT OF AN ADDITIONAL CASE IN WHICH THE GROWTH WAS SUCCESSFULLY REMOVED BY IRIDECTOMY.

Presented in the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY CLARENCE A. VEASEY, A.M., M.D.
PHILADELPHIA, PA.

Primary sarcoma of the iris is an affection so seldom met with that a report of each isolated case requires no apology. The following notes are from a very interesting case, kindly referred to me by Dr. Joseph J. Burke, from whom the growth was successfully removed by a broad peripheral iridectomy.

M. B., aged 46 years, a male, had been suffering from an inflamed left eye for three weeks when I was first asked to see him at his home. There was excruciating pain in the bulb that extended backward through the temporal region to the left side of the head, accompanied by intense photophobia on the least exposure to light, which was attributed by the patient to an attack of neuralgia. An examination, however, revealed marked pericorneal injection, a discolored iris, a contracted pupil with numerous posterior synechiæ and what appeared to be a brownish growth in the upper inner quadrant of the iris. Hot compresses at frequent intervals followed by the instillation of a solution of sulphate of atropin was the treatment prescribed and the patient was told to report at my office on the following day for further examination. Upon this occasion his vision was found to be for O. D. 5-9 and for O. S. 5-27, the latter eye being under the influence of a mydriatic and the patient complaining of everything looking very foggy. The vision of the left eye was unimproved by glasses. An examination of the right eye showed it to be normal with the exception of a low refractive error, which, when corrected, gave him perfect visual acuity.

An examination of the left eye showed an evenly dilated pupil except up and in. In this portion there were no synechiæ, but a small brownish tumor of the iris, somewhat ovoidal in shape, could be seen, the lower end of which was pushing the posterior pigment layer of the iris downward and backward giving to the pupil the shape seen in Fig. 1. With the red reflex from the fundus as a background the position of the lower end of the growth could be distinctly observed in the pupillary space. The growth itself was not so long as the entire width of the iris, as some iris tissue seemed unaffected both on the ciliary and pupillary ends, as well as upon the sides. It had the appearance of a foreign body making a bed, as it were, in the stroma of the iris, yet entirely separated from it and pushing the pigment layer before it as it grew backward. No blood vessels could be detected passing over its surface nor could any hemorrhages be seen. The capsule of the lens was somewhat cloudy and there remained a ring of pigment spots where the iris had been attached. No family history of tumors of any kind or specific personal history could be elicited. The patient had had some necrosis of one of the bones of the leg many years before, which had been entirely cured. He has three healthy living children.

Upon examining a photograph of the patient taken eight years before, there was a suspicious looking shadow on that portion of the iris occupied by the growth that looked as if it might have been a dark spot. A history of two other attacks of "neuralgia," evidently iritis, during this period affords additional evidence that the growth had existed for some time, though unnoticed by any of the patient's friends or members of his family. For three weeks before my examination it had been increasing rapidly in size and there was present a severe plastic iritis.

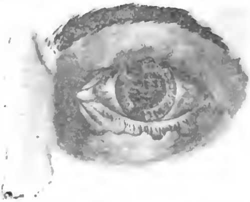

FIGURE 1.

Upon consultation with Dr. George E. de Schweinitz he agreed with me that the growth was probably a primary sarcoma of the iris, but to give the patient the benefit of the doubt it was thought proper to administer mercurial inunctions and rapidly increasing doses of potassium iodid for a short time to see what effect might be obtained. These remedies were faithfully employed for one week. at expiration of which time the growth was nearly twice as large as when first seen and the iritis was fully as bad, the pain still being intense, while the lens as well as the capsule was undoubtedly becoming opaque through the backward pressure of the lower, or pupillary end.

The growth was excised with a broad peripheral iridectomy without complication, except a profuse hemorrhage as soon as the inflamed iris was cut, a bent keratome and ordinary iris forceps being employed, there being no difficulty in drawing it out with the portion of the iris in which it was embedded. A small tag of the iris caught between the lips of the wound giving some pain for a moment, but as soon as it was released the pain disappeared. The eye made an uneventful recovery notwithstanding iritis was present at the time of operation. The opacity of the lens continued to increase until vision was reduced to light perception, when, though much clear lens substance was present, it was extracted through a three millimeter corneal flap without complication. This was about eight months after the first operation. Though the vision in the left eye, before the growth was removed by the iridectomy, equaled only 5–27, after the extraction of the opaque lens with the correcting glass vision equaled 5–6 and Jaeger 1 was easily read. So far as can be seen there has been no recurrence of the disease, fourteen months having elapsed since the growth was removed.

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[5] We wished to remove one of these for purposes of diagnosis, but were not allowed.

The tumor was somewhat crescentic in shape, being markedly concave on its inner surface and convex on its outer surface, measuring 2.5 millimeters in length, 1.5 millimeters in breadth and 1.5 millimeters in thickness. It was hardened in Müller's fluid and several sections were submitted to my friend, Dr. H. F. Harris of the pathologic laboratory of the Jefferson Medical College, who kindly furnished me with the following description of the growth and superintended the drawings, which were made by Miss Elizabeth Harding: "Four sections of the tumor were submitted to me for microscopic examination. In general outline and size they are practically identical; in form they are somewhat kidney-shaped. In the center of each is a U-shaped open space (Fig. 2), the convex border of which corresponds with the convex border of the mass. Bounding this opening and forming the inner layer of the tumor is a continuous layer of dark pigment plainly discernible with the unaided eye. The sections of the tumor given to me are thus seen to consist of an irregular but continuous ring surrounding an irregular opening. The convex portion of this ring is more than double the thickness of the concave portion. The portion where the iris was attached is not seen in any of the preparations. This fact and the peculiar shape of the section can only be explained bp the supposition that the tumor had grown forward forming a hollow somewhat hemispheric mass, the concave surface of which was lined by the pigment layer of the iris, and that segments of this mass were cut anterior to its attachments. One of the sections was stained with hematoxylin and eosin, and the others with carmin. Under a low power the tumor was seen to consist of small round cells with a considerable amount of intercellular substance. Numerous blood vessels were seen scattered through the growth. These vessels were especially numerous in the tissue forming the thin concave portion of the ring, and were remarkable for the thickness of their walls and for the fact that they contained no blood. The vessels of the thicker portions were filled with blood, and so far as could be seen had no walls, the blood being apparently in direct contact with the cells of the tumor. Numerous dark brown pigment granules were seen scattered through the tissues of the thicker portions of the ring. This was especially marked around the outer border. The pigment layer surrounding the inner border of the tumor was dark brown, almost black in color, and while continuous, was very irregularly disposed over the surface, several bands projecting into the open space in the center of the mass.

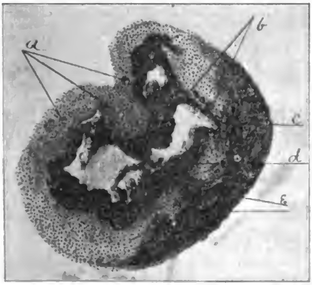

FIGURE 2.

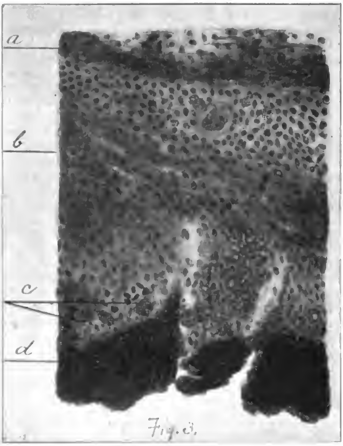

FIGURE 3.

"When examined with higher powers the cells which compose the greater part of the tumor were seen to be small round cells with which were intermingled a few oval ones (Fig. 3). These cells were almost of uniform size, having a diameter of from 10 to 12 microns. Their nuclei were stained of an almost solid color both in the hematoxylin and carmin preparations, in no case being sufficiently well preserved or stained to show the finer details. The nuclei were surrounded by a thin rim of protoplasm in which there were often embedded multiples of small pigment growths. In many situations, notably about the center of the thicker portions of the tumor, there is a considerable amount of firmly granular intercellular substance. In several places distinct bands of fibrous tissue and minute bundles of involuntary muscular fibers can be distinguished. Most prominent along its convex border, but scattered throughout the tumor, are numerous masses of granular dark brown pigment, varying in size from immeasurably small particles to collections having a diameter considerably greater than that of the cells which compose the tumor. From the pigment layer which covers the inner surface of the tumor numerous fine spiculæ of pigment substance are seen projecting between the neighboring cells. The tumor is, however, much less pigmented here than along the outer border and as has been before mentioned, much of this pigment is found within the protoplasm of the cells. The inner pigment layer presents the characteristic appearance of the pigment layer of the iris. The tumor is I think beyond doubt a pigmented, small round-cell sarcoma."

During the past twenty years several analyses of the previously recorded cases of sarcoma of the iris have been published, the most extensive, however, being those of Fuchs, Andrews and Werther. In 1882 the former published his classic treatise, "Das Sarcom des Uveal Tractus," in which he analyzed sixteen cases that he had collected from the literature up to that time. In a recent number of the *Archiv für Augenheilkunde*, F. Werther adds to Fuchs's list twenty-three cases collected from the literature appearing between 1882 and 1893. These tables have to a considerable extent evidently been compiled from incomplete abstracts of the original reports, as many of the important details of some of the cases have been omitted in the former but are found in the latter. In addition some of the cases have been found to be incorrectly classed; for example, when a non-pigmented sarcoma is placed under the heading "melanotic," and some of the cases were never operated on and are therefore useless for statistical purposes.

In the following list a few cases recorded prior to 1893 that seemed to have been overlooked in the previous papers, as well as those that have been reported from that date to the time of writing this paper (February, 1897), have been added. No case in which the growth was not operated on, and hence no histologic examination made has been included. Briefly, the principal points in the history of each case are as follows:

Case 1.—Adams. A female, 13 years of age, was brought to the author with a small brown tumor about twice as large as a pin's head situated on the lower and outer part of the left iris. While treating with mercury the size increased and another mass appeared in the neighborhood of the first. Vision equaled 20/30. Several opaque spots were observed in the deeper layers of the cornea. Enucleation was performed and the growth was found to be a round-celled sarcoma.

Case 2.—Alt. This case was a female 2 years of age. One month before the examination a small growth had been noticed on the right iris. The lens was cataractous. Tension at first was normal but later became elevated. There were several nodules throughout the iris, the largest being in the lower and outer quadrant. Enucleation was performed and the growth, which originated in the parenchymatous tissue of the iris, was a round-celled sarcoma.

Case 3.—Andrews. The patient, a female 47 years of age, had noticed discoloration of the left iris at the site of the growth for many years. The vision of this eye had been periodically obscured for fifteen months. There was no pain and the vision of each eye equaled 20/100. Iridectomy was performed and was followed by suppuration of the globe requiring enucleation a week later. Microscopic examination showed that the entire growth had been removed by the iridectomy. There had been no recurrence eight years later.

Case 4.—Andrews. This patient was a female, aged 43 years. A small growth on the left iris had been observed for a long time. The tension was elevated but the vision equaled 20/20. There was some circum-corneal injection but no pain. Enucleation was performed and the growth proved to be a pigmented spindle celled sarcoma originating in the stroma of the iris. The canal of Schlemm was somewhat narrowed and surrounded by a collection of the spindle-shaped cells.

Case 5.—Buffum. A female, aged 55 years, had noticed a "peculiar appearance" of the right iris for eight years. She had become blind in this eye gradually after repeated attacks of inflammation. The last attack was present three weeks before the examination. Since then the pain had continued. There was an injected bulb and the tension was about + 2. In the upper part of the iris there was a cyst-like development involving the upper two-thirds. The lower third contained several brownish spots. The aqueous was muddy, the lens hazy and the fundus indistinguishable. The growth was removed by iridectomy. Recurrence took place in three months. Enucleation was then performed. No recurrence had taken place at the expiration of eighteen months. The tumor was a spindle-celled sarcoma. The ciliary body had become secondarily involved.

Case 6.—Carter. The patient was a male, age 15 years, who had noticed several small specks on the left iris for three months, and two small specks on the right iris for fourteen days. At the time of the examination there was a yellowish growth half as large as a pea in the lower and inner quadrant of the left iris and small yellowish spots at the margin of the right iris in the external half. There were small circular opaque deposits in the layers of the cornea. The tension was normal and Jaeger 1 could be read with each eye. Iridectomy was performed in the left eye but the growth recurred. In the right eye the spots were so enlarged nine months after the operation that only large objects could be seen. The tumor was a round-celled sarcoma.

Case 7.—Charnley. This patient was a male, aged 16 years. A spot had been observed on the iris eleven years before and there had been occasional attacks of obscuration of vision from hemorrhage into the anterior chamber. At the time of the examination there was found on the lower and inner quadrant of the iris a small brownish-gray tumor about one-twentieth of an inch in diameter. Vision equaled 6/6. Recently red spots had appeared on its surface. It was removed by iridectomy and proved to be a non-pigmented spindle celled sarcoma.

Case 8.—Collins. A male, aged 21 years, presented himself for the treatment of a brownish growth of the left iris that was situated on the inner and lower quadrant. A photograph of the patient taken four years before the examination showed a brown spot on the lower and outer portion of the iris. At the time of the operation, however, the larger portion of the growth was on the lower and inner quadrant of the iris. Vision equaled 6/6 and the tension was "full." Enucleation was performed and the growth, which was a pigmented, small round-celled sarcoma, had not recurred in seventeen months.

Case 9.—Dreschfeld. A female, aged 53 years, had noticed some trouble with the left iris for two and one-half years. Examination showed a reddish-grey tumor about the size of a split pea in the lower part of the iris. The eye was enucleated and the growth, which probably originated from the intermuscular tissue of the iris, was a non-pigmented spindle celled sarcoma. The patient was under observation for several years, there having been no recurrence when last seen.

Case 10.—Edsall. A female, aged 23 years, had observed a small growth on the temporal side of the left iris, midway between the peripheral and pupillary margins about two years before. At the time of the examination the growth was about the size of a split pea covering the pupillary space and of a dark gray color with a smooth surface. The tension was elevated and the vision equaled 20/40 through a small hole in the center of the growth. Frequent hemorrhages were observed in the anterior chamber. Although the personal and family histories were negative, mercury and potassium iodid were administered for a time but without any beneficial result. Enucleation was then performed and the growth was a pigmented, small spindle-celled sarcoma.

Case 11.—Ewetzky. This patient, a male, aged 38 years, had noticed some trouble with his left eye for two weeks. Examination revealed a growth in the posterior part of the upper half of the iris pushing the iris forward and pressing on the lens. The tension was normal at this time but later became elevated. Vision equaled 10/70. As there was a history of syphilis acquired fifteen years before, the patient was treated with mercury, but vision became reduced to the counting of fingers. Enucleation was then performed and the growth proved to be a pigmented round-celled sarcoma.

Case 12.—Fano. The patient was a male, aged 19 years, who had a small brownish growth partially filling the anterior chamber of the left eye. There was same injection of the eyeball and slight vascularization of the cornea with hypopyon. Light could not be distinguished. The cornea was perforated. The operation for staphyloma was first performed and a week later the stump was enucleated. The examination showed small, regular, pigmented cells.

Case 13.—Hirschberg. The patient was a man aged 38 years, who had noticed a dark spot on the iris of the right eye since childhood, but which had been increasing in size for one year. The visual acuity equaled $^{20}/_{30}$ and the tension was normal. At the time of the operation there was a brownish growth occupying the lower two thirds of the anterior chamber that had originated in the lower portion of the iris. Enucleation was performed, and microscopically the growth was a pigmented spindle-celled sarcoma, probably originating from the anterior layers of the iris. There was no recurrence in six months.

Case 14. Hosch. A male, aged 66 years, had observed a brown spot on his right iris since youth. There was some injection in the lower part of the conjunctiva but no pain. The lower part of the anterior chamber was filled with a light brown growth that was pushing the iris slightly backward, and that extended almost to the center of the pupil. Externally the margin of the tumor was well defined; internally it disappeared into the iris stroma so that no line of demarcation could be made out macroscopically. The tension was normal and the vision, which at first equaled $^{15}/_{30}$ with a Hm. of 2D., at the time of the operation equaled $^{15}/_{100}$. The bulb was enucleated and the growth, which was 4 millimeters thick and 7 millimeters high, was confined to the iris and microscopically proved to be a pigmented spindle-celled sarcoma.

Case 15.—Kipp. A male, aged 36 years, had noticed a spot on the right iris twelve years before. For one month it had been growing very rapidly. At the time of the operation there was a whitish growth that covered a large portion of the pupil. Tension was normal and vision equaled $^{20}/_{20}$. The growth began in the lower and inner quadrant of the iris. It was excised by iridectomy and proved to be a non-pigmented spindle-celled sarcoma that probably originated in the iris stroma. There was no recurrence in eighteen months.

Case 16.—Knapp. A male, aged 36 years, had a growth occupying about one third of the iris, which was whitish and obstructed the entire pupil when the latter was not dilated. Vision equaled $^{20}/_{70}$. Iridectomy was performed and there had been no recurrence of the growth at the expiration of a year. The latter was a non-pigmented spindle-celled sarcoma originating in the iris stroma without any definite line of demarcation.

Case 17.—Knapp. A female, aged 35 years, had a blackish growth about as large as a pea, situated in the lower part of the iris that had been present for many years. During the four years preceding the examination there had been attacks of iritis and temporary increase of intra ocular tension. At the time of the examination, however, the tension was normal and the visual acuity equaled $^{20}/_{100}$. There was some lenticular opacity that was supposed to have been congenital. An iridectomy was performed and the tumor, which proved to be a pigmented spindle celled sarcoma, grew from the iris stroma without any definite line of demarcation. There were two mild attacks of iritis after the operation, but no recurrence of the growth had taken place in three years.

Case 18.—Knapp. A male, aged 22 years, had observed a small speck in his left iris ten years before. Examination showed a yellowish red growth extending from the iris into the anterior chamber, originating in the lower and outer quadrant and studded with red dots and lines. The tension was normal, although temporarily elevated at times, and the vision was $^{20}/_{20}$. The growth was removed by an iridectomy and proved to be a non-pigmented round-celled sarcoma originating from the iris stroma without any definite boundary line.

Case 19.—Knapp. A female, aged 53 years, had observed a tumor of the upper and outer quadrant of the iris four months before the examination that had been rapidly increasing in size. It was rather reddish and about the size of a cherry stone. The tension was normal and the vision equaled the perception of light. The eye was enucleated and the tumor, a round-celled sarcoma, was found to have originated from the root of the iris near the ciliary processes.

Case 20.—Krükow. A woman, 25 years old, had noticed for more than seven years a small black spot in the upper and outer quadrant of the right iris. The growth filled about one-fourth of the anterior chamber, covered half of the pupillary space and reached to the cornea. There had been some hemorrhages into the anterior chamber but these were always absorbed. Vision equaled $^{12}/_{30}$ (myopia $^{1}/_{36}$). The tension was normal. Iridectomy was performed for the removal of the growth which was a pigmented sarcoma consisting of spindle and round cells. There was no recurrence in one year.

Case 21.—Lebrun. A female, aged 36 years, had noticed failing vision for three months, during which time some brownish spots about the size of a radish seed were observed near the external periphery of the iris. The eye was blind. After treating for a while with negative results an iridectomy was performed. Inflammatory symptoms were so great, however, that two weeks later enucleation was performed. The growth was a pigmented mixed, round and spindle-celled sarcoma.

Case 22.—Limbourg. This patient was a female, seven and one half years of age, whose vision in the left eye had been much reduced for fourteen days. There was slight episcleral injection and some fine lymph exudate was observed on the posterior surface of the cornea. The anterior chamber appeared to be deeper than normal. The upper and inner part of the iris was occupied by a small yellowish growth, with a smooth surface that reached to the cornea in front. The tension was elevated and vision equaled the counting of fingers at 1 M. The eyeball was enucleated and the growth proved to be a non-pigmented round-celled sarcoma. The ciliary body and canal of Schlemm had become secondarily involved.

Case 23.—Little. The patient, a female, aged 20 years, gave the history of sudden blindness in the right eye sixteen months before while stooping. This lasted for about one week. On recovering her vision she noticed for the first time a spot on the colored part of the eye. During those sixteen months there had been three or four attacks of dimness of vision at irregular intervals, but after each attack vision had returned. These were presumed to be due to hemorrhage into the anterior chamber. At the time of examination there was a pale brown mass about the size of a small pea in the lower and outer quadrant of the iris that extended from the pupillary margin to the periphery. Vision equaled $^{20}/_{20}$. The growth was removed by an iridectomy and was found to be a pigmented round-celled sarcoma. There had been no recurrence in twenty-one months.

Case 24.—Oemisch. A female, aged 42 years, had observed six years before a dark spot on the lower and inner quadrant of the iris, from which there were occasionally hemorrhages. During these periods the vision was markedly reduced. After a period of quiescence it began to grow rapidly. In the anterior chamber there was a dark grayish-blue mass that reached nearly to the surface of the cornea and covered a large part of the lower and inner quadrant of the iris. It was about as large as a pea and reached to the pupillary margin. Iritis had been present. Vision equaled $^{5}/_{6}$. The growth was removed by iridectomy and was a non-pigmented spindle-celled sarcoma. There was no recurrence in four months and the patient had useful vision, being able to read "calendar figures" at 6 M.

Case 25.—Pflüger. The patient was a female, aged 55 years, who had observed a growth on the right iris six years before. It had been gradually increasing in size and there was entire absence of pain. There was a history of malignant disease in the mother originating in the naso-orbital region and extending to the globe of the eye. In the present case the cornea was normal. In the lower outer quadrant of the iris there was a dark brown tumor of irregular contour about 3 by 4 by 5 mm. in size, extending from the periphery of the iris almost to the pupillary margin. Above the horizontal meridian there was a second smaller growth, separated from the other near the pupil by healthy iris tissue, but connected with it near the periphery of the iris. The pupil was round, but with mydriasis there seemed to be posterior synechiæ and opacity of the lens and capsule. Vision equaled $^{5}/_{15}$ in each eye. A broad peripheral iridectomy was performed, removing both parts, and there had been no recurrence in two years. The visual acuity remained $^{5}/_{15}$. The growth was a pigmented spindle-celled sarcoma.

Case 26.—Pflüger. In the same paper the author records a case occurring in the practice of Dr. Horner, the history of which is as follows: A female, 36 years of age, had been aware for ten years of the existence of a small black spot on the lower quadrant of the left iris, that for a short period had been gradually increasing in size. The eyes were not inflamed. The pupil was oval and the growth extended from the margin of the pupil to the angle of the anterior chamber. It was removed by iridectomy and had not recurred at the expiration of three years. The microscopic examination is simply stated to have proved the diagnosis of sarcoma to have been correct.

Case 27.—Quaglino and Guiato. The patient was a female child, aged 6 years, on whose left iris there had been observed a small growth three months before. There was no irritation nor severe pain. Tension equaled + 2. The patient could only count fingers, and the mass occupied about two-thirds of the anterior chamber. The parents were perfectly healthy. Enucleation was performed and was followed by a phlegmonous inflammation of the orbit. Microscopic examination showed the growth to be a pigmented round and spindle-celled sarcoma.

Case 28.—Robertson and Knapp. A female, aged 24 years, complained of poor vision in the right eye for one year. Exam-

Number.	Author.	Sex and age.	Eye affected.	First noticed.	Condition at time of operation.	Tension.	Visual acuity.	Primary position of growth in iris.	Operation.	Later history.	Histology.
1	Adams	F., 13	O. S.		Brown growth as large as two pins' heads with a smaller one adjoining.		20/50	Lower and outer quad.	Enucleation.		Round-celled
2	Alt	F., 2	O. D.	One month before examination.	Several nodules throughout iris, the largest being in the lower outer quadrant.	At first normal in 2 weeks +	L. P.	Lower and outer quad	Enucleation.		Round-celled.
3	Andrews	F., 47	O. S.	Discoloration at site of growth for many years			20/100 20/100		Iridectomy, fol. by suppu. in globe necessitating enucleation a week later.		
4	Andrews	F., 43	O. S.	Small growth observed for a long time.		+	20/20		Enucleation.	No recurrence in 8 years.	Pigmented spindle-celled.
5	Buffum	F., 55	O. D.	Had observed a "peculiar appearance" of the right iris for 8 years.	Cyst-like development occupying upper ⅔ of iris: in the lower part there were several brown spots.	+	0	Upper half	Iridectomy; 3 months later enuclea. because of recurrence.	No recurrence in 18 months.	Spindle-celled.
6	Carter	M., 15	O. D. O. S.	For 3 months small specks on left iris and for 14 days on right iris.	O. D., yellow spots on outer half at margin. O. S., yellow growth half as large as pea.	Normal.	Jg. 1; Jg. 1	O.D. outer ½ O. S. lower inner quad.	Iridectomy in O. S.	O. S. recurred; O. D. spots so large 9 mos. after operation only large objects seen.	Round-celled
7	Charuley	M., 15		Spot on iris noticed 11 years before	Small growth, one-twentieth inch in diameter, overlapping pupillary margin.		6/9	Lower and inner quad.	Iridectomy.		Non-pigmented spindle-celled.
8	Collins	M., 21	O. S.	Photograph taken 4 years before examination showed spot on the iris.	Brown growth.	+	6/6	Lower and inner quad.	Enucleation.	No recurrence in 17 months.	Pigmented round-celled.
9	Dreschfeld	F., 53	O. S.	Two and half years before.	Reddish green growth the size of a split pea in lower part of iris.	+		Lower half.	Enucleation.	No recurrence in several years.	Non-pigmented spindle-celled.
10	Edsall	F., 25	O. S.	Two years before.	Smooth, dark gray growth, size of a split pea, covering pupillary space.	+	20/30 through a hole in center	Outer half.	Enucleation.		Pigmented small spindle-celled.
11	Ewetsky	M., 38	O. S.	Two weeks before	Growth in posterior part of iris pressing on the lens and pushing iris forward.	At first normal, later +	10/70	Upper half.	Enucleation.		Pigmented round-celled.
12	Fano	M., 19	O. S.		Injection of bulb; slight vascularization of the cornea and hypopyon; cornea perforated by brownish tumor.		0		Enucleation.		"Small regular" pigmented cells.
13	Hirschberg	M., 38	O. D.	Dark spot in iris since childh.; enlarging 1 year	Brownish growth occupying lower two-thirds of anterior chamber.	Normal.	20/30	Lower half	Enucleation.	No recurrence in 6 months.	Pigmented spindle-celled.
14	Hosch	M., 66	O. D.	Spot observed since youth that does not enlarge.	Light brown growth occupying ⅔ of anterior chamber so that pupil shows only as a small fissure.	Normal.	16/100		Enucleation.		Pigmented spindle-celled.
15	Kipp.	M., 36	O. D.	Observed 12 years, growing rapidly 1 month.	Whitish growth covering a large portion of the pupil.	Normal.	20/20	Lower and inner quad.	Iridectomy.	No recurrence in several years.	Non-pigmented spindle-celled.
16	Knapp.	M., 36			Whitish growth occupied ½ of iris and obstructed pupil when latter was not dilated.		20/70		Iridectomy.	No recurrence in 1 year.	Non-pigmented spindle-celled.
17	Knapp.	F., 35		For years blackish growth size pea in lower part iris.	For 4 years had been having attacks of iritis with transient elevation of tension.	Normal; at times +	20/100	Lower half	Iridectomy.	No recurrence in 3 years.	Pigmented spindle-celled.
18	Knapp.	M., 22	O. S.	Small specks noticed in iris 10 years before.	Yellowish red growth extending from iris into anterior chamber and studded with red dots and lines.	Normal; at times +	20/20	Lower and outer quad.	Iridectomy.		Non-pigmented round-celled.
19	Knapp.	F., 53		Four months before examination; rapid growth.	Reddish growth as large as a cherry stone	Normal.	L. P.	Upper and outer quad.	Enucleation.		Round-celled.
20	Krükow	F., 25	O. D.	Small black spot for seven years.	Fills ¼ of anterior chamber, covers half the pupil and reaches to the cornea.	Normal.	Myopia, 1·86 12/30	Upper and outer quad.	Iridectomy.	No recurrence in 1 year.	Pigmented spindle- and round-celled.
21	Lebrun	F., 86	O. S.	Failing vision for 3 months. Some brown spots external part of iris the size of radish seed.			0		Iridect'y followed by inflam. symptoms, enucleat. performed 2 weeks later.		Pigmented spindle- and round-celled
22	Limbourg	F., 7½	O. S.	Impaired vision 14 days; evidently from hemorrhage in anterior chamb	Yellowish growth in upper part of iris reaching to the cornea.	+	Counts fingers at 1 M.	Upper and inner quad.	Enucleation.		Non-pigmented round-celled.
23	Little	F., 20	O. D.	Spot observed on iris after attack of sudden blind. 16 mos. before exam.; several attacks dim vision since.	Pale brown mass as large as a pea extending from margin of pupil to periphery of iris.		20/20	Lower and outer quad	Iridectomy.	No recurrence in 21 months.	Pigmented round-celled.
24	Oemisch.	F., 42	O. D.	Dark spot observed for six years, frequently bleeds.	Dark grayish-blue mass size of pea reaching nearly to cornea; iritis had existed.		5/9	Lower and inner quad.	Iridectomy.	No recurrence in 4 months.	Non-pigmented spindle-celled.
25	Pflüger	F., 55	O. D.	Spot on iris for 6 years; gradually inc. in size.	Dark brown growth connected with a smaller one in outer part of iris.		5/15	Lower and outer quad.	Iridectomy.		Pigmented spindle-celled.
26	Pflüger	F., 36	O. S.	For 10 years a small black spot on left iris, increasing slowly in size.	Growth extends from margin of pupil to angle of anterior chamber.			Lower and outer quad.	Iridectomy.	No recurrence 3 years later.	
27	Quaglino and Guiato	F., 6	O. S.	Small growth observed for 8 months.	Two-thirds of the anterior chamber filled by tumor mass.	+	Counts fingers		Enucleation.		Pigmented spindle- and round-celled.
28	Robertson and Knapp.	F., 24	O. D.	Poor vision 1 year	Brownish growth near ciliary mar.; extending downward, still keeping to ciliary margin, chain of three smaller growths.	+	Counts fingers	Upper and outer quad.	Enucleation.	No recurrence in 2 years.	Pigmented round-celled with a few spindle-cells.
29	Romiée	F., 74		Poor vision for 84 years	Growth occupies the whole anterior part of eyeball, involving the cornea.			Upper half	Enucleation.		Pigmented small round-celled.
30	St. John	M., 50	O. S.	Black spot observed for one year.	Large brown mass filling external half of anterior chamber, pushing iris backward.	Normal.	6/100 excen.		Enucleation.		Pigmented spindle-celled.
31	Sauer	F., 7	O. S.	Four months before examination	The whole iris stroma converted into the tumor mass occupying anterior chamber.				Enucleation.	No recurrence in 3 years.	

32	Schiess	F., 55	O. D.	Diminution of vision for 7 weeks with inc. of tension	Tumor in posterior chamber pushing iris forward; in ciliary region sclera 7 brown spots.	+	. . . .	Upper and inner quad.	Enucleation	. . . .	Pigmented spindle-celled.
33	Solomon	F., 43	O. D.	For 20 years a small spot in iris growing slowly toward pupillary margin.	Brownish growth overlapping pupillary margin.	Normal	20/100	Lower and outer quad.	Enucleation	. . . .	Pigmented spindle- and round-celled.
34	Tay	M., 25	O. S.	Ten years before examination.	Grayish jelly-like mass covering pupil	. . . . . .	20/20	Lower half	Enucleation	. . . .	"Medullary cancer with pigment."
35	Thalberg	F., 64	O. D.	Followed an operation for cataract.	Whitish growth filling anterior chamber; secondary cataract.	+	0	. . . .	Operation for secondary cat. followed by enucleation.	. . . .	Non-pigmented round and spindle celled.
36	Veasey	M., 46	O. S.	Photograph taken 8 years showed dark spots on iris. Growing rapidly 3 weeks.	Severe iritis; small brown growth pushing backward on lens.	Normal	5/27	Upper and inner quad.	Iridectomy	No recurrence in 21 months.	Pigmented small round-celled.
37	Verter	F., 72	O. D.	. . . .	Occupying periphery of iris and lying against cornea; over-ripe cataract.	. . . . . .	0	. . . .	Enucleation	. . . .	Pigmented spindle-celled.
38	Verter	F., 60	O. D.	Had observed spot on iris for several weeks.	. . . .	. . . . . .	2/5	. . . .	Enucleation	. . . .	Pigmented spindle-celled.
39	Walker	F., 59	O. S.	A few weeks before examination.	Pinkish growth filling pupillary space resembling secondary cat.; iris, rotten growth obliterating anterior chamber.	. . . . . .	. . . .	. . . .	Discission, followed 3 weeks later by enucleation.	. . . .	Small spindle-celled.
40	Webster and Van Gieson	F., 60	O. S.	For 4 weeks a "purple mist" before the eye.	Growth about the size of a small pea	+	20/70	Lower and outer quad.	Enucleation	. . . .	Pigmented spindle-celled.
41	Werther	F., 72	O. D.	. . . .	Brownish-black semi-globular tumor size of a hemp seed.	. . . . . .	. . . .	Lower and outer quad.	Enucleation	. . . .	Pigmented spindle-celled.
42	Werther	F., 60	O. D.	Few weeks before examination.	Brownish-black semi-globular tumor size of a hemp seed.	. . . . . .	Hm. 1.50 D. 2/5	Lower and inner quad.	Enucleation	. . . .	Spindle-celled, part pigmented, part non-pigmented.
43	Whiting	M., 49	O. S.	Spot observed on left iris since 10 years of age.	Severe ocular pain and inflammation; large dark brown growth occupying lower part of anterior chamber.	Normal at first later +	At first 20/70; later 0.	Lower and inner quad.	Enucleation	No recurrence in 6 months.	Pigmented mixed-celled, the round predominating.
44	Wiegmann	F., 42	O. D.	Dark tumor on iris at birth; unchanged for 42 years.	Round brownish growth increasing rapidly in size for 7 months.	Normal	5/5	Lower and outer quad.	Iridectomy; galvano-cautery to dark spot in wound 9 mo. later	No recurrence in 1 year.	Pigmented spindle-celled.
45	Williamson	F., 14	O. S.	Six months before examination.	Growth reaching to pupillary margin; begun in periphery.	. . . . . .	. . . .	Lower and outer quad.	Iridect.; 3 days later enucleation, growth attached by deep adhesions.	No recurrence in 2 years.	Non-pigmented spindle-celled.
46	Zellweger	F., 75	O. D.	For long time small spot on iris; rap. growth for 6 wks	Pale pink vascular growth in lower part of iris and incipient cataract.	Normal	Counts fingers at 2½ M.	Lower half	Iridectomy	No recurrence in 6 months.	Non-pigment. small spindle-celled.

ination showed a brownish tumor in the upper and outer part of the iris at the ciliary margin, and extending downward from this a chain of three smaller growths still keeping to the ciliary margin. Vision equaled the counting of fingers and the tension was elevated. Enucleation was performed and microscopic examination showed the growth to be a pigmented round-celled sarcoma with a few spindle-cells here and there. There had been no recurrence at the expiration of two years. The origin was supposed to have been from the anterior layers of the ciliary portion of the iris.

Case 29.—Romiée. This patient was a female, aged 74 years, who had not been very well since she was 40 years of age. Examination showed an irregular growth occupying the whole of the anterior portion of the bulb, the cornea being involved. Enucleation was performed and the growth was a pigmented, small, round celled sarcoma that had its origin in the upper half of the iris. The retina was found detached, but the lens, choroid and sclera were unaffected. The growth had pierced the cornea in the upper part.

Case 30.—St. John. A male, 50 years of age, had noticed a black spot on the left iris for one year. The tension was normal and the vision equaled $^{5}/_{100}$ eccentrically inward. There was a large brown mass filling the external half of the anterior chamber and pushing the iris backward. Pressure on the cornea in front had caused a "hazy spot." The bulb was enucleated and the growth was a pigmented spindle-celled sarcoma.

Case 31.—Sauer. The patient was a female, 7 years of age. Four months before, there had been observed a growth on the left iris that had been rapidly increasing in size. At the time of operation the whole stroma of the iris seemed to have been converted into a tumor mass that occupied the whole anterior chamber. Enucleation was performed and the growth was a mixed-celled sarcoma, consisting of round and spindle cells. No recurrence had taken place at the expiration of three years.

Case 32.—Schiess. This case is a most interesting one. A female, 55 years of age, had noticed a gradual failure of vision of the right eye for seven weeks. There were also temporary attacks of increased intra ocular tension. At the time of examination a tumor was found in the posterior chamber pushing the iris forward. There were also seven large and small brownish spots in the ciliary region of the sclera. The eye was not sensitive nor was there any pain or irritation. The bulb was enucleated and microscopic examination showed that the ciliary body contained a true melanoma, while the growth in the iris was a pigmented spindle-celled sarcoma. The latter was supposed to have been secondary to the first and originated in the upper and inner quadrant of the iris.

Case 33.—Solomon. A female, 43 years of age, had noticed a small brownish speck about as large as a pin's head on the outer ciliary margin of the right iris twenty years before. It had been gradually increasing in size and growing toward the pupillary margin, which it overlapped at the time of the operation. The tension was normal and vision equaled $^{20}/_{100}$. The lens was clear but the vitreous cloudy. Enucleation was performed and the growth proved to be a pigmented round and spindle-celled sarcoma, some cells having passed into the sclera, following the course of Schlemm's canal.

Case 34.—Tay. A male, aged 25 years, had observed a peculiar growth on the lower half of the left iris for ten years. There was a grayish jelly-like mass with opaque points scattered through it covering the pupil. The vision remained normal until the pupil was covered by the growth. The eye was enucleated and the microscopic description of the growth was that of a "medullary cancer with pigment," which in all probability was a sarcoma.

Case 35.—Thalberg. The patient was a female, aged 64 years. Following the extraction of cataract and looking very much like a secondary cataract, there developed in the anterior chamber filling the pupillary space and involving the iris a whitish growth. The cornea became somewhat thickened, the tension was increased and vision was totally destroyed. The growth looked so much like a secondary cataract that an operation for the latter was performed. Pain persisted, however, and the growth increased in size so that enucleation was finally performed. The whole iris was found to have been involved by a non-pigmented sarcoma composed of large and small round, spindle and polygonal cells. The growth had its origin in the endothelial cells of the iris.

Case 36.—Verter. A female, 72 years of age, possessed a dark brown tumor of the right iris about the size of a hempseed, involving the peripheral portion of the iris and lying closely against the posterior surface of the cornea, occupying about one-third of the anterior chamber. There was present an over-ripe cataract and the eye was blind. There was no pain nor irritation, and the patient could give no account of the growth. The eyeball was enucleated and sections of the tumor showed it to be a pigmented spindle-celled sarcoma. The ciliary body, the spaces of the pectinate ligament, the venous plexus and the equator of the lens were all secondarily involved.

Case 37.—Verter. This patient was a female, aged 60 years, who had observed some weeks before a small dark, cinnamon-colored growth upon the right iris. The media were transparent and the visual acuity equaled 2/5 with + S 1.50 D. The vision of the left eye was normal with + S 1.50 D. Iridectomy had been advised at the time of first observation of the growth, but at the time consent to the operation was obtained the size was so much increased that enucleation was performed. The tumor was a pigmented spindle-celled sarcoma, and had secondarily involved the ciliary body, Schlemm's canal, Fontana's spaces and the cornea. A small cyst was also found in the periphery of the retina.

Case 38.—Walker. Patient was a female, aged 59 years, who had a cataract extracted from the left eye three years before without iridectomy. For a time before the examination the vision had been failing in this eye. There was no pain or inflammatory symptoms, but inspection showed a pinkish growth filling the pupillary space and strongly resembling secondary cataract. Discission was performed without benefit, the iris being rotten and adherent to the capsule. Three weeks later the eye was enucleated and the mass found to be a small spindle-celled sarcoma. Before enucleation the growth had extended to the cornea in front, obliterating the anterior chamber and looking very much like a large dislocated lens.

Case 39.—Webster and Van Gieson. The patient was a female, aged 60 years. For four weeks she had seen a "purple mist" before the left eye. There was found a growth about the size of a small pea in the lower and outer quadrant of the iris. The tension was elevated and the vision equaled 20/70. There was also present anterior polar cataract and edema of the retina. Enucleation was performed and the growth was found to be a pigmented spindle-celled sarcoma.

Case 40.—Werther. A female, aged 72 years, had a brownish-black semiglobular tumor about the size of a hemp-seed, in the lower and outer quadrant of the right iris. Enucleation was performed and the growth was found to be a pigmented spindle-celled sarcoma.

Case 41.—Werther. A female, aged 60 years, had observed a few weeks before a semiblobular, brownish-black tumor of the right iris about the size of a hemp-seed. There was a hypermetropia of 1.50 D., and the vision equaled 5/6. The growth was situated in the lower and inner quadrant. The eyeball was removed by enucleation and the growth proved to be a spindle-celled sarcoma, part pigmented and part non-pigmented. There was also found a cyst formation in the periphery of the retina.

Case 42.—Whiting. The patient was a male, aged 49 years, who had observed a spot on the left iris since 10 years of age. Several years before he had consulted Dr. Knapp, and at that time the eyeball became occasionally inflamed and there were hemorrhages into the anterior chamber. At the present examination there was a dark brown growth filling the entire lower inner quadrant of the anterior chamber, covering the inferior internal margin of the pupil, which was oblong. There were no synechiæ. The cornea was slightly hazy from contact at several points. Vision of the right eye equaled 20/20; of the left, 20/70. Nine years later the patient returned on account of severe ocular pain and inflammation of the eyeball, which was now totally blind. The tension was elevated. Enucleation was performed and the growth was a pigmented mixed-celled sarcoma, the round cells predominating. The choroid had become secondarily involved and contained a true bony formation.

The case is exceedingly interesting, as the growth was watched for a long time, being observed at ten years of age, remaining harmless for twenty-five years, slowly growing for thirteen years with occasional attacks of iritis and hemorrhages into the anterior chamber for seven years there being no doubt as to its malignancy. The patient refused earlier operative interference. There had been no recurrence at the expiration of six months.

Case 43.—Wiegmann. The patient was a female, aged 42 years. At birth there was observed a dark tumor about 2/5 mm. in diameter on the lower and outer quadrant of the iris, that had remained unchanged until seven months before the examination, when it began to enlarge. The tension was normal and vision equaled 5/5. Iridectomy was performed and was followed nine months later by the application of the galvano-cautery to a dark spot in the wound. This was repeated in about two weeks. The tumor was a pigmented spindle-celled sarcoma and no recurrence had been noted at the expiration of one year.

Case 44.—Williamson. This patient was a female, 14 years of age. Six months before, there had been noticed on the lower and outer quadrant of the left iris a yellowish spot. At the time of the examination the growth reached to the pupillary margin, having begun in the periphery. An attempt was made to remove the tumor by an iridectomy, but this was followed, three days later, by enucleation of the eyeball as the growth was found to be firmly attached by deep adhesions. Microscopic examination showed it to be a non-pigmented spindle celled sarcoma.

Case 45.—Zellweger. A female, aged 75 years, had noticed a small spot on the right iris for a long time. During the six weeks preceding the examination it had been growing very rapidly. There had been no pain or inflammatory symptoms at any time. The examination showed a pale, pinkish, vascular growth in the lower part of the iris, and beginning cataract. The tension was normal and the vision equaled the counting of fingers at 2½ M. The growth was removed by iridectomy and was a non-pigmented small spindle-celled sarcoma originating from the anterior layers of the iris. There was no recurrence *in situ* in six months, but as the patient had some loss of appetite the author questions whether a recurrence had taken place by metastasis. Of this there was no later proof.

Arlt refers to two cases from whom the growth was removed by iridectomy, and to a third case requiring enucleation of the eyeball. In neither were there any details of the histories, either prior or subsequent to the operations.

Fuchs, in the discussion of a paper, refers to a case of primary sarcoma of the iris for which the eyeball was enucleated, but the details of the history are too meager to be of any use.

Cases in which primary sarcoma of the iris was diagnosed but which were not operated upon, are recorded by Berthold, Fuchs, Galezowski, von Graefe, Hasner, Owen, Pflüger, Saltzmann, St. John Roosa and Stober.

In order that the cases may be more easily analyzed, and to facilitate reference to any particular point in connection with them the accompanying table has been prepared somewhat after the manner of Fuchs. It will be seen therefore from the above that there have been recorded forty-six cases of primary sarcomata of the iris in which operative procedures have been undertaken and microscopic examinations made. Of these cases we have fourteen males, thirty-two females, giving, in round numbers, 69.5 per cent. of females and 30.5 per cent. of males.

The ages range as follows: From 1 to 5 years, one case; from 6 to 15 years, six cases; from 16 to 25 years, nine cases; from 26 to 35 years, 1 case; from 36 to 45 years, ten cases; from 46 to 55 years, nine cases; from 56 to 65 years, five cases; 66 to 75 years, five cases.[1]

By referring to the above it will be seen that between the ages of 15 and 25 inclusive there occurred ten cases, and between 35 and 45 inclusive there occurred eleven cases, whereas the intervening period, from 25 to 35, contained only one case. There seem, therefore, to be two periods during which the disease is most likely to manifest itself, viz., between the ages of 15 and 25 and between the ages of 35 and 45, with a very moderate increase of predisposition in favor of the latter period, the intervening period, that is from 25 to 35 being almost free from the affection, as only one of the forty-six cases occurred during this time. Beyond the age of 45 the predisposition decreases very gradually and *vice versa*, the nearer we approach this age the greater becomes this predisposition.

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[1] If instead of analyzing the ages according to decades, we take 5-year periods, the age of predisposition can be reduced even further, still conforming with the statistics of the above tables. From 1 to 5 years, one case; from 6 to 10 years, three cases; from 11 to 15 years, three cases; from 16 to 20 years three cases; from 21 to 25 years, six cases from 26 to 30 years, no cases; from 31 to 35 years, one case; from 36 to 40 years, six cases; from 41 to 45 years, four cases; from 46 to 50 years, four cases; from 51 to 55 years, five cases; from 56 to 60 years, four cases; from 61 to 65 years, one case; from 66 to 70 years, one case; from 71 to 75 years, four cases. It will be seen, therefore, according to this, that from 20 to 25 and from 35 to 40 years of age afford the periods of greatest predisposition. This result entirely agrees with that obtained from the first table, the former, perhaps, being slightly more accurate as it affords a greater range.

It must be considered, however, that the above figures represent in many cases the ages at which the patients were operated upon. But as the greater number of cases were operated upon shortly after coming under the observation of the various authors, and as most of them came under observation shortly after the growths in the iris were discovered, the two periods given represent quite fairly the decades of greatest predisposition.

The youngest case in the list was 2 years of age and the oldest 75 years of age, the average age being 39.3 years.

It is to be noted also that seventeen of the cases occurred before the 35th year and twenty-nine after the 35th year; or, if the 40th year be taken as the dividing line we have an equal number on either side, namely, twenty-three.

As to the ages when the growths were first observed to be in an active state, it is impossible to give any definite statistics. The larger number of patients consulted surgeons within a short time after the discovery of the affection, but it must be remembered that many of the growths have the history of originating from apparently dark tumors of the iris, melanomata, which after remaining in a state of quiesence for many years assumed a malignancy that microscopic examinations afterward proved to be sarcomata.

We find that the left eye has been more frequently affected, though the difference in predisposition is not marked, the actual ratio being as follows: Right eye affected in nineteen cases; left eye affected in twenty-one cases; both eyes affected in one case; not stated in five cases.

The tension as given in the histories is as follows: Normal in eleven cases: elevated in sixteen cases; not stated in nineteen cases.

In five of the cases given as "elevated" the histories state that the tension was normal as a rule, but at times elevated. Thus of those cases in which the condition of the tension is recorded we have 40.7 per cent. normal, 40.7 per cent. elevated and 18.6 per cent. as varying, being sometimes normal and sometimes elevated. This differs somewhat from the recently published statistics of Devreaux Marshall, who has found in intra-ocular neoplasms affecting the iris or ciliary body that the tension is increased in 35.71 per cent. diminished in 14.28 per cent. and normal in 50 per cent. As his cases were not, however, exclusively primary growths of the iris, but growths affecting either the ciliary body or the iris, or both, being primary and secondary, the difference may be easily accounted for. In no one of the cases of primary sarcomata of the iris was the tension stated to have been diminished.

The condition of the visual acuity in these cases ranged thus: Normal in nine cases; 20/100, or better, in fourteen cases; less than 20/100 in eight cases; light perception in two cases; blind in six cases; not stated in eight cases.

In some of the cases the lens was more or less cataractous (Alt's, Knapp's, Oemisch's, Verter's and my own). In the latter case, after the extraction of the lens the patient obtained vision equal to 5/6 and easily read Jaeger 1.

The positions occupied by the tumors on the surfaces of the irides are variously given as follows: Lower and inner quadrant, seven cases; lower and outer quadrant, eleven cases; upper and inner quadrant, three cases: upper and outer quadrant, three cases; lower half, five cases; upper half, three cases; outer half, two cases; not stated, thirteen cases.

Of the thirty-two definitely stated cases we have, therefore, twenty-three cases, or 71.8 per cent. orignating from the lower half of the iris, and nine cases, or 28.2 per cent. originating from the upper half of the iris. There seems also to be a somewhat greater predisposition to occur in the outer portion of the lower half, or in the lower outer quadrant of the iris.

The operations that were performed in the recorded cases were: Enucleation in thirty-two cases; iridectomy in fourteen cases. In the above thirty-two cases under the heading "enucleation" are included four cases in which iridectomy was first performed and in which enucleation was subsequently required. In Andrews' case, enucleation was performed a week after the iridectomy, because of suppuration of the globe; in Lebrun's case it was performed two weeks later because of "inflammatory symptoms" in the globe; in Williamson's case three days later, because the iridectomy disclosed the fact that the growth was attached by "deep adhesions;" in Buffum's case three months later, because of recurrence. In Carter's case the growth recurred, but it was so distinctly unfavorable that nothing else could have been expected. So that we have out of forty-six cases operated upon, the successful removal of the growth in thirteen cases, by iridectomies, in which no recurrence is recorded during the time they remained under observation, which varied from four months to many years. In none of the enucleations are recurrences positively recorded, but in one (Zellweger's case) a loss of appetite with some gastro-intestinal disturbance was looked upon as probably the beginning of a metastatic process, though no subsequent mention is made of it.

The histologic examinations of the growths showed that twenty-seven were pigmented, ten cases were non-pigmented, and nine cases not definitely stated.

It seems somewhat odd that in a tissue so highly pigmented as the iris we should have a non-pigmented growth, yet in the thirty-seven cases definitely recorded we have in round numbers 27 per cent. of the non-pigmented variety and 73 per cent. of the pigmented variety.

As to the cellular formation of the growths we have twenty-three cases of spindle celled; eleven cases of round celled; seven cases of mixed celled; five cases not definitely stated.

This, in round numbers, places in the spindle celled classification 56 per cent.; in the round celled classification 27 per cent, and in the mixed celled classification 17 per cent. of the reported cases.

Symptoms.—From a study of the recorded cases it is seen that primary sarcoma of the iris may occur at almost any age, the youngest being 2 years, the eldest 75 years of age, the periods of greatest predisposition being between the 15th and the 25th, and between the 35th and the 45th years. As a rule it is first observed as a spot of discoloration upon the iris, which, after a period of quiescence varying from a few weeks to many years, begins to increase rapidly in size, interfering with vision according to the degree of inflammation it has caused and the amount of pupillary space covered. Vision is also sometimes obscured for short periods of time by transient increase of the intraocular tension or by hemorrhages from the growth into the anterior chamber. Sooner or later it is apt to produce iritis and by pressure backward to cause opacity of the capsule and lens. Tension is presumably increased when the growth attains sufficient size, or has brought about sufficiently violent inflammation to interfere with the interchange of the ocular fluids. If left to itself it attains considerable size, perforating the external coats of the eye, and usually produces blindness. It occurs twice as frequently in females as in males, each eye seems to be equally predisposed and the favorite position seems to be in the lower half, and especially in the lower and outer quadrant of the iris.

Diagnosis.—Primary sarcoma of the iris may be mistaken for simple melanoma, for gumma, or for primary tubercle of the iris.

A simple melanoma becomes darker and darker while a melano-sarcoma ordinarily retains its primary shade. A melanoma is also a congenital growth while sarcoma is not. If the patient, or patient's family, can give no accurate information on this point the growth must be watched for some time to note if there is any progress (Fuchs).

Whenever a gumma of the iris appears there is a severe iritis, whereas in the early stage of sarcoma of the iris there are no inflammatory symptoms. In gumma of the iris, also, there is a specific history with other symptoms referable to syphilitic infection.

The color of the gumma is either an iron-red or deep yellowish-red, while that of sarcoma is reddish-gray, blackish or light brown, or flesh-color (Andrews.) Gumma is non-vascular and yellowish-white in color at the summit, but at the base it is vascular and has a yellowish-red border (Fuchs). If the diagnosis can not be positively made from the examination, the administration of anti-syphilitic remedies, for a short time, in large doses will clear up the matter.

Tubercle of the iris is of much more rapid growth than sarcoma and in color is of a light yellowish-white, or light grayish-white, or light grayish yellow (Andrews). As a rule no vessels are seen on its surface, whereas in sarcoma superficial vascularization can usually be detected. The larger number of cases of tubercle have occurred in subjects under 15 years of age, whereas the larger number of cases of sarcoma have been found in older persons. Tubercle is much more irregular in form than sarcoma and the accompanying inflammatory symptoms also appear earlier.

Treatment.—If the growth is sufficiently small and does not extend to the extreme ciliary portion of the iris an attempt should be made to remove it by an extremely broad peripheral iridectomy. The statistics conclusively prove that in many cases not only has the eyeball been preserved but with useful vision, and that no recurrence has been noted years after the removal of the growth by this operation. If the growth, however, is so large or is situated so near the ciliary margin of the iris that it is impossible to remove all of it by an iridectomy, or if any other portion of the eye has become secondarily involved, immediate enucleation should be performed.

BIBLIOGRAPHY.

1. Adams: On a Case of Sarcoma of the Iris and Ciliary Body, Lancet, April 12, 1879 p. 511.
2. Alt: A Case of Sarcoma of the Iris in a Child Two Years Old, Amer. Jour. of Ophthal., 1890, Vol. vii.
3. Andrews: Primary Sarcoma of the Iris, New York Med. Jour., 1889, p. 595.
4. Andrews: Primary Sarcoma of the Iris, Trans. Amer. Ophthal. Soc., Vol. vii, p. 583.
5. Arlt: Handbuch der gesammten Augenheilkunde, Graefe-Saemisch, Bd. iii, p. 420.
6. Berthold: Ueber die pathologische anatomischen Veränderungen der Augen Medien und Häute bei intraocularen Tumoren, Archiv f. Ophthalmologie, Bd. xv, p. 159.
7. Buffum: Ocular Neoplasms, Jour. of Ophthal., Otol. and Laryngol., 1, 1, p. 35.
8. Carter: Case of Sarcoma of Both Irides, Trans. London Clin. Soc., 1874, Vol. vii.
9. Charnley: Case of Sarcoma of the Iris Removed by Operation, The Ophthalmic Review. 1892, No. 3.
10. Collins: Primary Sarcoma of the Iris, Royal London Ophthal. Hosp. Reports, 1889, Vol. xii, p. 273.
11. Dreschfeld: On a Case of Sarcoma of the Iris, Lancet, Jan. 16, 1875, p. 82.
12. Edsall: Primary Sarcoma of the Iris, Med. News (New York), Jan 23, 1897, p. 107.
13. Kwetzky: Ueber Dissemination der Sarkome des Uvealtractus, Archiv f. Ophthalmologie. 1896, p. 170.
14. Fano: Observation de Cancer de L'Iris Nécessité L'Extirpation de L'Oeil. L'Union Médicale, 1865, No. 59.
15. Fuchs: Das Sarcom des Uveal Tractus, Wien, 1882.
16. Fuchs: Melanoma iridis, Archiv. f. Augenheilk, Bd. xi, p. 435.
17. Fuchs: Anz. d.k. k. Gesellsch. d. Aertze in Wien, 1887, p. 198 (Quoted in Muench. med. Wochenschrift, 1887, No. 46, p. 905).
18. Galezowski: Tumeur melanosarcomateuse de l'Iris, Recueil d'Ophthalmologie, 1879, T. 1, p. 729.
19. v. Graefe: Ein melanotische Geschwulst der Iris, Archiv f. Ophthalmologie, Bd. i, p. 414.
20. v. Graefe: Tumoren der Iris, Archiv f. Ophthalmologie, Bd. vii, 2, p. 36.
21. v. Graefe: Zusätze ueber intraocular Tumoren, Archiv f. Ophthalmologie, Bd. xiv, 2, p 168.
22. v. Hasner: Melano-sarcoma iridis primarium circumscriptum, Prag. med. Wochenschrift 1882 (Nagel's Jahresbericht der Ophthalmologie, f. 1883, p. 419).
23. Hirschberg: Ein Fall von Sarcoma iridis, Archiv f. Ophthalmologie, Bd. xiv, 3, p. 285.
24. Hosch: Primäres Sarcom der Iris, Centrebl. f. prakt. Augenheilk., 1881, p. 361.
25. Kipp: A Case of Primary Sarcoma of the Iris, Cured by Excision of the Tumor, Archives of Ophthalmology. Vol. v, p. 84.
26. Knapp: Three Cases of Successful Removal of Sarcoma of the Iris, Archives of Ophthalmology, Vol. viii, p. 82.
27. Knapp: Die Intraocularen Geschwulste, 1868, pp. 175 and 220.
28. Knapp: Sarcoma of the Iris, New York Acad. of Medicine, Section on Ophthalmology, meeting of Nov. 21, 1887 (Abstract in Phila. Medical and Surgical Reporter, 1887, Vol. lvii, p. 739).
29. Krükow: Fall von primärem Melanosarcom der Iris, Wjestnik der Ophthalm., iii, p. 179 (Nagel's Jahresbericht der Ophthalmologie für 1886, p. 348).
30. Le Brun: Tumeur sarcomoteuse de l'Iris, extirpation du globe. Guerison, Annales d'Oculistique. T. lx, 1869, p. 208.
31. Limbourg: Ein Fall von Leucosarcom der Iris verbunden mit Iritis Serosa, Archiv f. Augenheilk. 1890, Bd. xxi, p. 394.
32. Little: Case of Round-celled Sarcoma of the Iris; Successful Removal of the Tumor, Trans. of the Ophthalmolog. Soc. U. K., 1883, Vol. iii, p. 28.
33. Marshall: Tension in Intraocular Tumors, Trans. of the Ohphthal. Soc. U. K., 1896.
34. Oemisch: Ueber das Sarkom der Regenbogenhaut, Inaug. Dissert. Halle, 1892.
35. Owen: Tumor of Iris, Brit. Med. Jour., Dec. 9, 1882, p. 1156.
36. Pflüger: Zur Kasuistik des Melanosarcoms der Augen, Universitäts augenklinik in Bern. Bericht ueber das Jahr 1883.
37. Quaglino e Guiato: Contribuzione alla storia clinica ed anatomica dei tumori intra ed extra-oculari, Annali di Ottalmologia, vi, 2, S. 163.
38. Robertson and Knapp: Sarcoma of the Iris, Archives of Ophthalmology. Vol. iii, 2, p 105.
39. Romieé: Melanosarcome de l'Iris: Recueil D'Ophtholmologie, April 1881, p. 207.
40. St. John Roosa: Vascular Tumor of Iris, Probably Sarcomatous, with Colored Plate, Trans. of the Amer. Ophthalmolog. Soc., 1869, p. 14.
41. Salzmann: Ein Fall von Sarcom per Iris und des Ciliarkörpers, Wiener Klinische Wochenschrift, 1893, No. 9, p. 166.
42. Saner: Beitrag zur Kasuistik der Irissarkome, Inaug. Dissert., Halle, 1883.
43. Schiess: Zur Casuistic der Iris Tumoren, Archiv f. pathologische Anatomie und f. klinische Medicin, 1876, Bd. lxix, p. 100.
44. Solomon: Melano-sarcomatous Tumor Growing from the Iris of the Right Eye, Trans. of the Ophthalmog. Soc. U. K., 1882, vol. ii, p. 257.
45. Stober: De la Nature Cancereuse de la Melanose de l'œil. Annales d'Oculistique, 1853, T. xxx. p. 264.
46. St. John: Primery Sarcoma of the Iris, Trans. of the Amer. Ophth. Soc., Vol, vii, 3. p 532.
47. Tay: Primary Cancer of the Iris, Royal London Ophthal. Hosp. Rp'ts., 1866, Vol. v. p. 230.
48. Thalberg: Zur pathologischen Anatomie des primären Irissarcoms, Archiv. f. Augenheilk., Bd. xiii, 1, p. 20.
49. Veasey: Concerning Primary Sarcoma of the Iris. A Statistical Study with the Report of an Additional Case in which the Growth was Successfully Removed by Iridectomy, Trans. Amer. Med. Assoc., Section on Ophthal., 1897.
50. Verter: Dva shichava sarkomi radiszhnoi obolocnki. (Two Cases of Sarcoma of the Iris). Vestnik Oftalmologii, Kiev, 1896, xiii, Nos. 4 and 5.
51. Walker: Sarcoma of the Iris, Trans. of the Ophthalmolog. Soc. U. K., Vol. xv, p. 184.
52. Webster and Van Gleson: A Case of Sarcoma of the Iris, Archives of Ophthalmol., 1889, Vol. xviii, p. 15.
53. Wedl und Bock: Pathologische Anatomie des Auges, Wien, 1896.
54. Werther: Ueber das Sarcom der Iris, Archiv f. Augenheilk., 1896, Bd. xxxii, 2, p. 297.
55. Whiting: A Case of Primary Sarcoma of the Iris with Formation of Bone in the subsequently Involved Choroid, Archives of Ophthalmol., 1890, Vol. xiv, 4.
56. Wiegmann: Ein Fall von Melanosarcom der Iris hervorgegangen aus einem angeb. nævus; Inaug Dissert., Jena, 1893.
57. Williamson: A Case of Spindle-celled Sarcoma of the Iris, Brit. Med. Jour., Dec. 1896.
58. Zellweger: Ein Fall von Leucosarcom der Iris, Klin. Monatsbl. f. Augenheilk., 1888, Bd. xxvi, p. 366.

DISCUSSION.

Dr. HOWARD F. HANSELL of Philadelphia—My remarks on this interesting addition to the literature of primary sarcoma of the iris concern chiefly the differential diagnosis between this and other forms of tumor of the iris and ciliary body as I have had opportunity to observe them in my practice. These affections, with the exception of tumors of syphilitic origin, are among the rarest of eye diseases and it is only by a collation of individual experiences rather than by the classic and oft repeated dicta of any one writer that advance may be made in our knowledge. Until very recently I believe it was the common impression that sarcoma of the uveal tract was a distinctly fatal disease, but the paper of Mathews and the discussion that followed it showed conclusively that in many cases it was years before enucleation was necessary. The slowness of growth may be attributed to the serous sac that in cavities that have serous linings, forms over the tumor and prevents involvement and disintegration of neighboring structures. Eventually this envelope becomes attenuated to such a degree that it is no longer able to sustain the pressure from within and, rupturing, the sarcoma cells find new soil for development. Two cases exhibited this winter by Carpenter and Perrine, before the Section on Ophthalmology of the College of Physicians of Philadelphia, had been of extremely slow growth and enucleation was finally resorted to in order to relieve the pain of secondary glaucoma rather than because the tumors showed a tendency to spread. Identical grounds for treatment prevail when the tumor is recognized as belonging to the so-called benign variety, and we may therefore infer that primary sarcoma of the uveal tract is *per se* not an especially malignant affection.

The diseases that most closely resemble sarcoma of the iris are fibroma, cyst, gumma and primary tuberculosis; yet in none of these should the diagnosis long remain uncertain, particularly after operative interference. Considered clinically only, a fibroma offers the following points of difference: It occurs as a rule in young patients as the result of traumatism, and is not a result of inflammatory exudation although it often gives rise to inflammation; the color is that of the iris stroma or darker; it is oblong in shape and shows a tendency to extend by increase in the area of its base and not by layers of deposit; its surface is rough, presenting a strong contrast to the smooth encapsulated shining surface of the sarcoma. It is non-vascular except when the associated iritis is of high grade; exacerbations of iritis are common, hence posterior synechiæ, not limited to the site of the tumor although secondary to it, are numerous. Vision is interfered with according to the situation, size, rate of growth and the degree of transparency of the anterior capsule. Family history in the cases I have seen did not enter into a consideration of the diagnosis. In sarcoma there is perhaps a family history of tumor, the patients have reached middle age; the outline is sharp and well defined, the surface is smooth and shiny to oblique illumination and its form round and, if old, nodulated; the pupil dilates irregularly, the non involved portion of the iris dilating to light and mydriatics while the portion adjacent to the tumor is adherent to the anterior capsule.

In cyst a history of traumatism can invariably be elicited; the tumor grows rapidly, soon coming into contact with the cornea anteriorly and dislocating the lens posteriorly; there is no iritis and but little interference with vision until adjoining parts are disturbed in their function; it is pearl color, non-vascular and painless, its outer limiting membrane is fibrous and its inner is serous in its nature; its contents is straw-colored, nearly transparent and semi-fluid. Thus in nearly every essential it differs from sarcoma.

Gumma is always associated with and causatively related to the iritis of secondary or tertiary syphilis. In color, in intensity of inflammation, in the presence of hypopyon or collections of broken-off necrosed masses of the tumor in the anterior chamber, in the severity and character of the pain, in the loss of vision and in the history, it offers few points of resemblance to sarcoma. In primary tuberculosis the iris is dotted in numerous places with small deposits, averaging the size of a pin's head, of somewhat lighter color than the healthy iris tissue. In the only case that has fallen under my observation it appeared in the early childhood of the offspring of a tuberculous parent. The vision was reduced to the perception of light, and there were no signs of inflammation.

One point of interest common to all cases of tumor either of the iris or other tissues of the eye, may be mentioned. I refer to the intra ocular tension. I have found tension to be unaltered until the late stages, when I have regarded the increased pressure to be the result of secondary glaucoma and not to an increase in the contents or to a change in their character but to a disturbance of the relation between secretion and excretion. If perforation of the coats of the ball has taken place, high will naturally be succeeded by low tension and such a succession would indicate an advance in the growth.

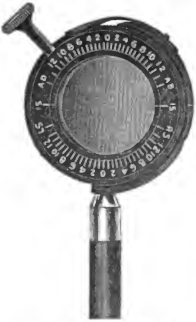
A DUCTION INDICATOR AND PHOROMETER COMBINED.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY A. E. PRINCE, M.D., PH.D.

SPRINGFIELD, ILL.

In 1892 I conceived the idea of simplifying the determination of the static relation of the optic axes by placing a Maddox rod behind two rotating prisms, thus avoiding the necessity of employing a series of prisms, and presented this conception in a paper read before the Ophthalmological Section of the AMERICAN MEDICAL ASSOCIATION, at Detroit. In 1893 this idea was embodied in my phorometer published in the *Archives of Ophthalmology*. This conception has been adopted by Wilson in the construction of his instrument. The dial is so graduated as to indicate the combined effect of the two prisms in every possible relation to one another, and each quadrant of the dial is lettered to indicate the character of heterophoria. In testing for hyperphoria, the index will point to R.H., L.H., or 0, denoting the degree of right or left hyperphoria, or the existence of neither. Similarly in observations relative to esophoria or exophoria, the index will point to Ex., Es., or 0, denoting the degree of exophoria, esophoria or the absence of either of these conditions.



Prompted by the successful operation of this instrument in determining the static relation of the recti muscles, Bonschur & Holmes in 1894 made, at my suggestion, an instrument for determining the dynamic capacity of the recti muscles. The prism employed had a strength of seven and a half degrees, thus furnishing every possible prism from 0 to 15 degrees. The graduated quadrants were lettered respectively Ad., Ab., R. S., and L.S., to indicate adduction, abduction, right sursumduction and left sursumduction. This instrument was presented to the profession through the *Ophthalmic Record*, July 1894, under the title of "A Duction Indicator and Developer."

The third step in the evolution is the use of a Maddox multiple red rod in place of a single rod, thus avoiding the necessity of centering the instrument before the eye, which was the case with the original phorometer.

The fourth step in the evolution completes the instrument which I offer you today. It consists of two seven and a half degree prisms mounted in a circular metal frame and caused to rotate in reverse directions; in this manner every possible degree may be obtained.

The direction of the base of the resultant prism is always in a line transverse to the diameter joining the two zero points, and the strength is always indicated on the margin of the frames opposite the middle point of the base of the prism. Behind this variable prism is placed a Maddox multiple red rod, the axis of which is transverse to the diameter joining the zero points.

In testing the relation of the recti muscles, the instrument is first used as a phorometer, for by so doing the static (or rest) condition may be obtained before any spasm shall have been induced by the requirement of the muscles to overcome prisms.

In testing exophoria and esophoria the instrument is held by the observer, before the right eye and rods, horizontal dial out, and the patient is directed to look at a candle flame placed on a level with the eye and before a dark background. The pinion is then rotated until the vertical red image of light is seen superimposed over the candle flame. The quadrant occupied by the base of the prism will indicate either esophoria or exophoria, and at the point where the middle of the base of the prism cuts the quadrant will be found the degree of heterophoria.

The rods are then rotated into the vertical position when the red streak will be seen in the horizontal plane; when this is brought in line with the flame the amount and character of the hyperphoria when it exists will be indicated on the quadrants corresponding to hyperphoria.

Having ascertained the relation of the optical axes in a state of rest the efficiency of the various muscles to overcome prisms is ascertained by converting the instrument into a duction indicator and proceeding as follows: The multiple red rod having been removed the instrument is held before the right eye as before. The diameter corresponding to the zero points occupy the vertical plane in testing adduction and abduction; the horizontal plane in testing right and left sursumduction. The pinion is rotated until diplopia results, when the amount of prism deviation is read off on the corresponding quadrant indicated by Ad., Ab., R.S. or L.S. In testing R. and L. S. and abduction the prismatic amplitude being fifteen degrees it is usually sufficient, but in testing adduction an auxiliary prism is required.

Auxiliary prisms may be placed in a trial frame, but to economize time and avoid any possible obliquity of the axis, I place before the eyes an ordinary frame in which is mounted two ten-degree prisms base out. The duction indicator will now have an amplitude of from five to thirty-five degrees depending on whether the action of the variable prism acts in conjunction or opposite to the stationary prisms.

The duction indicator and phorometer, as I present it to you today, has been in daily use during the past three years, and I have made numerous comparisons between it and Gould's prism battery, both for determining maximum abduction and adduction, as well as cultivating the capacity of the muscles to overcome prisms of a greater and greater strength, and almost invariably the duction indicator has shown a superiority over the prism battery. This superiority is due to the fact that the increment of increase is infinitesimal, while the increment of increase with Gould's prism battery is two degrees, e. g., in ascertaining the maximum adduction, the patient gets to a point where the overcoming of two degrees in the ascending series is more than the muscles will accomplish, and diplopia, therefore, results. In the use of the duction indicator, turning the pinion slowly, a fraction of a degree is all the muscles are obliged to overcome, and the patient is gradually enabled to exercise the muscles to a greater extent before diplopia asserts itself. In the effort, therefore, to obtain a maximum capacity of the recti muscles in their effort to overcome prisms, the duction indicator is undoubtedly an instrument far superior to any prism battery.

A CLINICAL STUDY OF HYPERPHORIA.

BY JOHN T. CARPENTER, JR., M.D.

Read in the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, Pa., June 1-4, 1897.

PHILADELPHIA, PA.

The importance of recognizing and correcting with absolute accuracy, any existing error of refraction, has long since become an axiom, a truth too evident to require demonstration. In the past decade, mainly as a result of careful clinical study, errors of muscular balance have been attracting the attention of the ophthalmic surgeon; but in this field there still exist wide differences of opinion both as to the importance of muscular defects and the necessity for their treatment. One may find almost anything desired by searching the literature of this subject. If he be naturally conservative he may read of that wonderful and unfailing "cure-all" for muscular imbalance, prismatic exercise. The method of cure is both simple in its application and positively harmless. It is even monotonous in the uniformity of its good results. On the other hand, should the ophthalmologist be surgically inclined; should his desire be to refute the base insinuation that he is a mere "fitter of glasses;" he can find enthusiastic advocates of a measure apparently no less magic in its results, tenotomy of the ocular muscles. There is discord in regard to the prescribing of prisms in the position of rest, a procedure which according to some will transform orthophoria into heterophoria, and increase the amount of heterophoria already existing. Certainly there is need of a more satisfactory presentation of this entire subject of muscular abnormalties, and in passing I wish to mention the excellent work done in this direction by Duane whose valuable contributions in the *Annals of Ophthalmology* (Vols. v and vi), deserve the highest commendation. Risley has put himself on record as an advocate of a more scientific classification of motor anomalies (*University Medical Magazine*, January, 1895).

Hyperphoria is not rare, if by it we mean the tending of one visual axis above that of its fellow. From my case-books I find it in about 35 per cent. of my cases, as discovered by the Maddox rod at the first visit. By no means all of these are true hyperphoria or demand treatment. In these are included cases of hyperphoria combined with esophoria or exophoria as well as those which may justly be termed spurious hyperphoria dependent upon disturbed refractive or muscular conditions and disappearing after these have been corrected. I have notes of cases in which a change made in the axis of the cylinders in astigmatism resulted in the disappearance of the hyperphoria. (Such cases have also been seen by Risley, *loc. cit.*) I have attributed this kind of hyperphoria to the spasm of the oblique muscles set up by the false position of the cylinder. Spasm of the obliques might readily cause hyperphoria, especially when of variable nature or degree. In these cases prisms in position of rest only aggravate the conditions and result in gradual increase in the amount of the vertical error.

It is important to remember that besides the mere existence of muscular anomalies we must consider their relation to other local ocular states, refractive and accommodative, as well as to general systemic conditions. It is a matter of clinical observation that gouty or rheumatic muscles can closely simulate the clinical picture of heterophoria, and many errors in treatment, notably surgical treatment, are caused by too little regard for this fact. Our efforts should be directed toward the study and arrangement of this subject into definite clinical groups, having a similar causative relation and, therefore demanding a similar and definite line of treatment. It is the lack of this which has brought discredit upon tenotomy as a method of treatment, and much of the uncertainty in, and many of the apparently contradictory results of, tenotomy would be avoided were the anatomic and physiologic questions involved more carefully and accurately studied.

Classification.—For teaching purposes and as an aid to the clinical study of hyperphoria I have adopted the following classification, which though by no means perfect possesses to my mind distinct practical advantages. It avoids the confusion arising from a merely symptomatic arrangement in which cases widely dissimilar in nature are yet grouped together because they reveal a similar tendency to divergence, convergence or vertical deviation.

1. Spurious Hyperphoria. Including:
   A. Hyperphoria due to a general disease: gout, rheumatism.
   B. Hyperphoria appearing in disease of central nervous system.
   C. Hyperphoria secondary to abnormal refractive or muscular states.
2. True Hyperphoria. Including:
   A. Concomitant.
   B. Spasmodic.
   C. Paretic.

Symptoms of hyperphoria include local or ocular, and remote or general symptoms. My case-books show among the ocular disturbances due to hyperphoria:

1. Affections of the lids. The most characteristic is chronic palpebral hyperemia or inflammation, with intense burning pain, as in the "hot eye" of gout and blepharitis; recurring attacks of hordeoli or chalazia, usually in the eye in which the muscle is at fault, seem to be truthfully attributable to hyperphoria, as they have in several cases been cured by correction of the hyperphoria by prism or operation.

2. Reflex ocular neuroses, e.g., epiphora of a very annoying character, photophobia. In one case a quite marked ptosis of the left eye with hyperphoria of 5 degrees almost entirely disappeared after correcting the hyperphoria.

3. Visual disturbance: Amblyopia of the hyperphoric eye (Stevens); transient diplopia which to my mind accounts for most of the inability to carry on work at a near point; ocular vertigo sometimes severe enough to simulate intra-cranial disease.

4. Muscular asthenopia due to defects in the lateral muscles resulting from effort to correct the vertical error.

The remote symptoms include: Severe headaches made worse by close work; general reflex derangements of the nervous system often most remote from the ocular seat of trouble; nausea and various symptoms whose disappearance after correction of the hyperphoria leads the clinician to infer that they were caused by the muscular defect. No justification exists for the treatment of hyperphoria from which the patient suffers no discomfort and of whose existence he is "sublimely unconscious."

Tests for the determination of hyperphoria.—I find the optometer and phorometer devised by Risley, with two rotary prisms, one fixed for the vertical and the other for lateral muscles, the most satisfactory form of apparatus. I should certainly hesitate to accept results gained by the use of the ordinary trial-frame and prisms in *approximately* accurate positions. The familiar test with the Maddox rod and small point of light reveals any tendency to hyperphoria in most cases. I wish to lay particular stress upon the value of the plane red glass placed before one eye, which gives many valuable hints as to binocular vision, its existence and the conditions under which enjoyed. The cover test slightly modified by allowing the covered eye to be excluded from the binocular vision for some moments will, in hyperphoria give blurred distant vision or even vertical diplopia for the smaller letters, which diplopia is always indicative of the nature and character of the hyperphoria. The value of the field of fixation and the tropometer of Stevens is certainly great in enabling the surgeon to arrive at a complete understanding of the conditions present in the neuromuscular system of the eyes. Having ascertained the existence of hyperphoria it is necessary to determine its true nature. Just as we refer departures from the standard refractive condition, emmetropia, to that ideal so must we have a standard for cases of muscular anomalies. I feel sure that standard as regards the vertical muscles is a condition of equilibrium at 6 m. as revealed by the tests herein enumerated. The vertical muscles should in health be able to overcome the diplopia caused by 2°-4° prism held vertically. Normal muscular balance certainly means a condition of tension of the extra-ocular muscles with power to bring both visual axes promptly into line on the object viewed. Defects of refraction with their compensatory accommodative and muscular efforts must be eliminated by a careful measurement under a cycloplegic and the correction by properly ground and accurately centered lenses made of all important defects, which in my judgment include small amounts of astigmatism. It is important to decide whether the hyperphoria is produced by a general or local cause; neurasthenia, lowered vitality during convalescence from an illness or surgical shock; gouty or rheumatic inflammatory attacks of ocular muscles, and lastly the involvement of the cranial nerves supplying ocular muscles as part of central nervous disease must all be carefully considered in deciding this question.

Neurasthenia with lowered nervous and muscular tone is shown by inability on the part of various muscle groups to overcome the normal prism degree. Insufficiency of convergence is particularly indicative of this trouble. Other symptoms of gout or rheumatism;

dull aching in the eyeballs; congested condition of the ocular and palpebral conjunctiva help one in arriving at definite conclusions as to the gouty or rheumatic origin.

A knowledge of general nervous disease is absolutely essential to the ophthalmic surgeon.

Local causes are best grouped, as Duane has done, into those resulting from overaction and those from underaction, hyper- and hypo-kinesis. In the first class we must place anatomic defects causing true concomitant hyperphoria and also spasmodic hyperphoria from efforts to compensate for a weak or paretic muscle. In the second class are defects varying from simple weakness to absolute paresis of a muscle.

In this connection I should like to emphasize the importance of carefully taking the field of fixation, which should show 35–38° upward and 50–55° downward rotation. Of equal import is the use of a red glass at 6 m. and a small fixation object-type or small dots, with which diplopia should be sought for in all parts of the field. An increase in the amount of separation in any definite direction leads of course to the belief that the muscle or muscles whose function it is to carry the eye in that direction are weak or paretic.

Treatment.—The therapeutic measures applicable to hyperphoria include local and general measures. Local: Corrective refractive prisms in position of rest; prismatic exercise; operative measures; tenotomy and advancement or muscle shortening. General treatment: Therapeutic measure indicated by the underlying cause. In many cases, painstaking, accurate measurement and correction of the refractive error results in disappearance of the hyperphoria; attention to refractive errors is always the first proceeding. Prisms in position of rest give the greatest relief to some cases, while in other instances only aggravate the discomfort of the patient. Probably the cases in which they give marked and lasting relief are those of long standing and practically stationary paresis of one or more of the vertical muscles. Temporary relief, often very prompt and astonishing, may be gained by hooking on a prism in front of the refractive correction. The relief to remote symptoms by the procedure (at times little short of wonderful) indicates that operative measures will prove equally gratifying in their results. In many cases the result can not be foretold and the practice of allowing patients to wear prisms temporarily, so made as to hook on top of the glass, is one which I can thoroughly commend.

Operative treatment is not applicable in hyperphoria of variable degree; in paretic cases where there is some central nervous disease or where the condition is recent and progressive. Cases of hyperphoria dependent upon a disease of the muscles, rheumatic or gouty occurring in patients well on toward 50 years of age, who have not possessed binocular vision for some years, are also unfavorable for operative procedures.

Tenotomy is perfectly satisfactory and often brilliant in results when the hyperphoria is of the concomitant variety and where it is constant in amount and character, where prism tests and fixation field and other methods show marked overaction of one of the vertical muscles.

Advancement should be preferred to tenotmy in cases of long standing and non-progressive paresis of a vertical muscle, and also where prism tests or fixation field show manifest weakness of the vertical muscles.

In hyperphoria of 1 to 2° and rarely of 0.5°, I have had unexpectedly brilliant results from both prismatic and operative treatment and we should always bear in mind the relatively great disturbance of 0.5° to 1° of hyperphoria when the total strength of the vertical muscles is represented by 2.5° to 3° prism.

My experience with prismatic exercises for the vertical muscles has shown that immediately after tenotomies, where the effect gained has been insufficient, a persistent and faithful course of prismatic exercises, carried on while the conditions of healing are as yet unsettled, results in marked benefit, which I have found to be permanent in its effect.

CONCLUSIONS.

1. It is essential at the outset that a distinction should be made between true and spurious hyperphoria.

2. It is absolutely imperative that before deciding upon any line of treatment for hyperphoria a careful and accurate examination of existing anatomic conditions should be made, which should include: Estimation of refraction, determination of tension of extra-ocular muscles as indicated by their ability to overcome diplopia produced by prisms properly placed; measurement of the field of fixation, monocular and binocular, and an employment of all the tests which tend to remove the strong impulse to binocular single vision and reveal latent defects such as the red glass, Maddox rod, etc.

3. Treatment should be directed against the underlying cause after determination whether the defect be due to spasm, paresis or actual overaction from anatomic conditions, tendon insertion, etc.

4. Tenotomy is indicated only in muscles showing too great power. Advancement or muscle shortening in cases revealing weakness of a muscle or at least no overwhelming power in its antagonist.

5. There is urgent need of a more satisfactory classification of the entire subject of motor abnormalities.

DISCUSSION ON PAPERS OF DRS. PRINCE AND CARPENTER.

DR. EDWARD JACKSON of Philadelphia—I have not seen Dr. Prince's instrument until now, so I can not give results of any trial of it. I notice one thing in the mechanical execution, that is, the rods are made very perfectly. You can not take half rods for this purpose without getting a slight interval separating the parts of the streak that each rod gives. This has been made by taking a little less than one-half of each rod. The principles involved are not new, but the method of working them out is, and it seems a very simple and efficient instrument.

In noting down the results of such examinations, for several years I have employed certain signs that require less time to write them, less room in the case book, and can be read more quickly and more unmistakably than other abbreviations indicating orthophoria or heterophoria of any kind. Some of them have been employed by others and some, I think, are new. They include the sign of libra (♎) for lateral balance, and vertical parallel lines ( ) to indicate vertical balance. For exophoria the lines diverge from left to right thus <, and for esophoria they converge from left to right thus >. For right hyperphoria I take the two lines, which for vertical balance are both vertical, and simply place the right line sloping away from the other, thus V; in left hyperphoria, in the opposite direction ʌ. These lines can be read very easily and you can record a half dozen observations, made at different times, on the same line of the case book.

As regards this instrument, the only thing I have to remark is on the extent of the scale, running up to 15 degrees. That is considerable less than rotary prisms have usually been made to give, but will answer all practical purposes. There are many persons with good rotation who do not get more than 15 degrees of adduction on the first trial. If one finds with this that there are 15 prism degrees of adduction, unless there be something pointing to weakness of adduction, this may be assumed in a routine examination to be enough. The weaker the prism, of course, the more accurate its work for the lower degrees. Still I think this is not equal to the triple rotary prisms which I proposed, which give the long spaces instead of the short spaces between the low degrees. The Maddox rod, in some form, I rely upon chiefly for routine examination for heterophoria. I use it in all cases, and if there is reason to follow out that line of investigation further, I afterward resort to other tests of muscular balance.

Dr. H. M. **Starkey** of Chicago—I used the new instrument of Dr. Prince for a short time, it having been sent to me for study, but not long enough to give any definite idea as to whether I should consider it more useful than other instruments we have. I made, in my mind, the same criticism that Dr. Jackson has spoken of, that it would be more easily used if arranged as Dr. Jackson's adduction prisms are. One point in exercising the adductors; if we use the prisms and find adduction of 10, 15 or 25 degrees, we can then place the duction indicator over that and rotate it to the same extent of 15 degrees and the image would still be kept single. If we put a prism of 20 degrees in front of the eyes for stimulating adduction and placing the Prince thorometer in front of that, rotate it until we add 15 degrees, we can not afterward go up to 15 degrees with the prisms; it did not stimulate the muscles except in just that way.

Dr. S. D. **Risley** of Philadelphia—I have been very much interested in this very ingenious instrument and will take an early opportunity to study it more carefully. This is the first I have seen of it in its latest form. I wish to speak particularly of Dr. Carpenter's paper, and to say that I am thoroughly in accord with the principles of classification and the methods of examinations to which he has so briefly but clearly referred. I was glad to see him separate those cases that may be due to general dyscrasia. I am sure these may be readily overlooked. There are many persons with rheumatic or gouty diatheses that have transient spells where the amount of variation in the ocular balance is very irregular. We have all seen transient palsy due to gouty disturbance, and before we enter upon operative procedures these cases should be excluded. One class of cases that were not mentioned is the group where abnormalties are simulated by disease at the macula. I have seen cases in which the eyes were drawn this way or that to get rid of an absolute scotoma. If the Maddox rod is used and you guide the patient a little, you will find a blurred spot in the line itself, or that a section of the rod is absolutely cut out by the blind spot of the macula. I presented a paper at Edinburgh in which I divided these into two classes, 1, those due to some anatomic defect in the muscle or its relation to the ball or to disease, leading to muscular anomalies, and 2, those due to errors of refraction. The last were relative and disappeared when the refractive error was corrected or with brief training of the muscles. The patient had to be taught to overcome the relation between convergence and accommodation.

In this group the correcting glasses make it necessary for him to learn a new order of things as regards the relation between accommodation and convergence, but when he has learned this the relative insufficiencies disappear. I am sure that heterophoria often exists in consequence of anatomic defects in the skull. We know perfectly well that the skull is distorted in a large number of persons. The first group, or the absolute insufficiencies frequently grow out of these abnormalities in the skull and shape of the orbit, which give rise to disturbances in the length of the muscles and their attachments to the eyeball, and in those cases we may correct the error of refraction, but the abnormality of balance will remain until we have adopted some form of operative interference. These I have called absolute insufficiency.

Dr. J. T. **Carpenter**, Jr., of Philadelphia—There was one point in my paper in regard to prism exercise for the muscles, which I did not have time to read; that is the value of using the prism exercises after an operation that has not produced sufficient results, I mean immediately after the operation. The result of such exercise has in some cases done permanent good and increased the effect of an operation that was not sufficient; this is especially applicable when the hyperphoria is of low degree and yet a disturbing element. A point that we should not forget is that the entire strength of the vertical muscles is represented by 2 to 4 degrees and a defect of 0.5 degrees even is a serious burden for these muscles.

Dr. A. E. **Prince** of Springfield—I want to call attention to a point that has occurred to me in regard to discovering a small amount of hyperphoria that does not render itself apparent upon application of the rod test. It is by sursumduction; in this way, do not commence with the weak prisms and run up, but take a prism that will give you diplopia and then go to weaker ones. That gives the balance and you will find indications that will be quite useful. I will make it clear by a case which had been examined by different men and showed no hyperphoria. I found that if I used a prism that gave diplopia, one of 4 degrees, and then used a 3, 2.5 and 2 degrees prism, and then worked the other eye in the same way, that they come together, one at 2 degrees and one 2.5 degrees, so there was 0.5 degree difference. By putting that correction in the glasses the little patient was entirely relieved of all trouble.

AMBLYOPIA EX ANOPSIA, WITH CASE.

Presented to the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY A. C. SIMONTON, M.D.

SAN JOSE, CAL.

The only apology that need be offered for presuming to discuss the question of amblyopia ex anopsia before this learned section of the American Medical Association is to state the existing fact that in this year 1897 there are eminent ophthalmologists who deny the possibility of the occurrence of the said condition. It would seem that this question should have been definitely settled long since, but it was discussed extensively, *pro* and *con*, at the meeting of this Association in 1893, and at this meeting we are to have some more *pros* and *cons*, no doubt.

How any ophthalmologist who observes closely, thinks clearly and weighs well the terms he is using, will venture to assert that there is no such condition as amblyopia ex anopsia I shall not attempt to explain. While it is a fact that it has not fallen to the good fortune of many oculists to observe the restoration to perfect vision of an eye almost totally blind from disuse, yet many ophthalmologists have observed many cases in which there has been partial restoration of vision after a strabismic eye has been rendered parallel with its fellow. But the restoration not being complete they assert, by the careless line of reasoning and expression before mentioned, that inasmuch as there yet remains amblyopia, the strabismus was caused by original amblyopia and not amblyopia by the strabismus. But when it is acknowledged, as is the case by all authorities, that in a strabismic eye which is highly amblyopic a large percentage of vision may be acquired when the eye is rendered parallel with its fellow and the function of fixation established, is it not equivalent to acknowledging, at least, that the vision thus gained had been in abeyance by reason of lack of use? If so, does not that constitute amblyopia ex anopsia? If this eye, which gains much vision, had always been parallel with its fellow, does any one suppose for a moment that its visual power would ever have fallen below the full amount now gained by virtue of use in later life? Whether such eye had an original defect which would have rendered it more or less permanently amblyopic or not, it is clear that to the extent vision is restored by use, vision had been lost by virtue of non-use. If one-fourth, one-half or three-fourths of the visual power may be lost or never acquired in a strabismic eye by non-use, is it not logical to conclude that in many cases the total loss in visual power is attributable to this cause? If not logical then why not?

No doubt quite a percentage of eyes become strabismic because of opacities of the cornea, lens or other media, or defective retina, and we find the same class of individuals who deny the existence of amblyopia ex anopsia contend that all strabismic eyes become so by virtue of defect of vision in the converging or diverging eye, and not on account of any conditions relating to accommodation and convergence as maintained by Donders. But all agree that there is frequently partial restoration of vision; therefore, there must have been partial amblyopia ex anopsia. And as said before, if part of an amblyopia may be due to want of use the total amblyopia may be thus caused.

The members of our profession who admit fully the existence of amblyopia ex anopsia are also those who agree with Donders that convergent strabismus in a very large majority of cases is due to hypermetropia. The question is raised by those who deny the existence of amblyopia ex anopsia that if convergent strabismus is caused by hypermetropia why do we not have a thousand cases for every one that now exists, since the number of hypermetropes is very great compared with the cases of strabismus? But why are there comparatively so few cases of strabismus when there are so many cases of hypermetropia, has been asked many times and long ago. All students of physiologic optics are familiar with the relations that exist in emmetropia between accommodation and convergence, that these relations are co-ordinate and reciprocal. Now while it is true that under exactly normal conditions there is precisely a given amount of convergence corresponding with a given amount of accommodation, yet these conditions are frequently in abeyance for one reason or another; therefore there is another fortunate possibility on the part of human eyes provided for, and that is the power of *dissociating* the two functions of convergence and accommodation. All know how this must be done in adult life in the use of optic instruments, and in presbyopia when spectacles are used. But in adult life, after the individual has long enjoyed perfect binocular vision, there has supervened a greater adaptability to varied visual conditions than possibly existed at a time when binocular vision at the near point was being established in infancy.

In a certain percentage of children this power of disassociating the two functions of convergence and accommodation is nil; in other words, they have no relative range of accommodation and convergence. In an infant who can not disassociate these functions and in whom hypermetropia exists there must inevitably follow convergent strabismus, since accommodation and convergence must be equal. This to my mind is the exact reason why a certain per cent. of hypermetropes become strabismic when accurate binocular vision at close range is being established, and this without the existence of any defect of vision on the part of the converging eye. And again, this theory will explain why it is not necessarily in high degrees of hypermetropia, rather than how, that strabismus occurs.

It is not nearly so difficult to ignore, mentally, an indistinct image in an eye out of parallel with its fellow, as many are given to suppose. Quite occasionally in our tests of muscle equilibrium we find that our patient, although possessed of good binocular vision, can with difficulty recognize the second image produced by the use of prisms.

But when the focal point in a strabismic eye falls upon the disk, as it often does in convergent strabismus, there will be no nervous impression to ignore. It is in these cases of convergent strabismus where the focal point falls on the blind spot that we have early amblyopia, and if conditions are allowed to continue almost total loss of vision in a few years. It is different in divergent strabismus. In this case the focal point falls on sensitive retinæ outside the macula. It has been my observation that in outward deviation the amblyopia is not nearly so great, as a rule, as in the convergent form. In many cases a large amount of vision remains in a divergent eye and yet the person is not troubled with double vision in the least. Close the habitually fixed eye and fair vision will be manifest in the diverging eye. Some of these patients, no doubt, use their eyes alternately, as is the case with many of the lower animals whose eyes are so placed as to preclude binocular fixation. It seems that these animals have the power of acute vision with either eye while ignoring the image in the fellow eye for the time. At all events it remains a fact that in divergent strabismus, in many cases, quite a percentage of vision remains in the divergent eye with no recognized diplopia. But on account of the fact that the focal point does fall upon sensitive retina, although said impression is not recognized in the sensorium, it results in preserving to a greater extent the function of the nervous apparatus of the eye than would be the case did the focal point fall upon the blind spot.

So few have been the cases reported of complete restoration of vision of an eye that has been strabismic and amblyopic that the profession is almost incredulous in regard to such reports. Learned ophthalmologists were surprised by the report of a case by Dr. Johnson at the Milwaukee meeting of this ASSOCIATION in 1893, in which case there was complete restoration of vision in an eye that had been strabismic and amblyopic from early infancy, to the extent that vision was almost *nil*. Some of these able confrères remarked that it was the first and only case that had come to their notice seeming to establish the doctrine of amblyopia ex anopsia, forgetting, as I have stated before, that partial restoration of vision of an amblyopic eye is as much evidence of amblyopia ex anopsia as full restoration.

In concluding this paper I will report a case, in my own practice, in which a highly strabismic and amblyopic eye was restored to perfect vision by correcting hypermetropia alone.

Case.—March 31, 1892, Pauline C., aged 8 years, was brought to my office for consultation about strabismus of the left eye, which had existed from the age of three years. The convergence was in high degree. Owing to the fact that fixation of the left eye had practically always been in abeyance, it was somewhat difficult to assume this function with the right eye covered. Our first test of vision elicited the information that the patient could recognize her father at about five feet, and recognized a pencil held in the hand at four feet, but could not tell how many fingers were held before her at this distance. I attributed this low state of vision on this occasion to inability to fix the left eye. Vision of right eye was $^{16}/_{60}$, and with — spherical 1 D. she read in part $^{16}/_{20}$. Plus glasses obscured vision more. Owing to meager vision manifested by the left eye at short range I did not test acuity of vision at distant letters. I put the eyes under the influence of duboisia for further and better examination. R. V. $^{5}/_{200}$. With + S. 2 D. read $^{16}/_{20}$. Here was positive evidence that ciliary spasm had existed in this case making an apparent myopia in a case of hypermetropia. Under duboisia and with + S. 2 D. the left eye now read indistinctly, $^{16}/_{60}$. This was the best vision that could be obtained with lenses. Skiascopy confirmed the existence of 2 dioptrics of hypermetropia.

I placed + 2.50 S. before these eyes and sent the child home, the eyes being fully under the influence of duboisia. I hoped on account of the vision remaining in the left eye to be able to overcome the strabismus and acquired amblyopia by glasses alone. The sequel proves that my hope was well founded. It will be observed that I gave over-correction. The patient called at my office April 4, 1892, when I discovered the eyes were about parallel. On April 9 strabismus had disappeared. At this time, with + S. 2 D., read $\frac{16}{40}$ with left, showing quite an improvement. I directed that the right eye be covered for two hours each day for distant vision. July 13, three and a half months after adjusting glasses, distant vision of left was $\frac{16}{16}$, and medium print at fourteen inches. I have seen this patient often since the last date and vision is perfect. I have continued, from the first, the use of 2.50 D. lenses, both for distance and near. They blurr distant vision slightly, but are no detriment at the near point. My reason for continuing the strong glasses is that the tendency to squint has never disappeared and the instant the glasses are raised from the eyes the left one again converges.

While this was not a case of the most extreme amblyopia, yet it was amblyopia in quite high degree, and it demonstrates most clearly that the strabismus was not due to original amblyopia, for there is none finally left. It demonstrates, also, as clearly as though the case were an extreme one, that the entire amblyopia was due to the strabismus, and if the strabismus had continued a few years longer vision would have been almost totally lost in the left eye. There is nothing clearer to my mind than that this conclusion is correct, and there is such a condition as amblyopia ex anopsia.

AMBLYOPIA FROM SUPPRESSION, CONGENITAL IMPERFECTION OR DISUSE: WHICH OR ALL?

Presented to the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

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Since different writers use the term "amblyopia ex anopsia" to express radically diverse ideas, it is needful to define its meaning in this discussion. Negatively it is not applied to a dulness of vision induced either by an organic lesion, which can be objectively seen with the ophthalmoscope or otherwise; nor by exclusion of light from the retina, in part or whole, during long periods; nor by defective refraction or disturbed muscular equilibrium of either ciliary, rectus or oblique muscles. Positively it is applied to that dulness of vision which attends the inability of the brain to recognize impressions sent it from the retina.

As to the nature and causes of the dulled vision, we have three widely differing views. The first contends that the brain actively inhibits the visual center from receiving impressions, until it loses its receptive power in whole or part; the second says that the brain or visual center was not properly constructed; while the third argues that the phenomena result from simple disuse, like the disability induced in other organs by a cessation of much or all of their functional activity during a considerable period. The relative importance of these views is of a practical nature. If we adopt congenital imperfection, it matters little whether cases of squint with amblyopia are operated upon early or late; whether the refractive defects be corrected at once or at convenience; the visual results will be the same. If suppression be accepted, then it were criminal to delay in the rectification of those causes which are believed to induce the loss of sight, lest the inhibitory power of the brain continue to the production of absolute blindness. If the amblyopia be regarded as due to simple disuse, then surely every consideration prompts to an immediate restoration of the fullest functional activity.

Ophthalmologic literature affords abundant authority in support of either of these views, and of the practice based thereupon. In this state of the question, discussion by experts is of more than passing moment, and to secure such discussion from this Section is the object of this paper.

The suppression view of amblyopia claims that the brain, being disturbed by conflicting images sent it from separate eyes, inhibits the visual center from recognizing the least perfect one. Frequent repetition of this inhibition, at last, so changes the cell action of the visual centers that they become unable to recognize the imperfect image. These imperfect images are due to a variety of causes, as refracting errors, muscular derangements individually or combined in all sorts of ways. On the suppression view there could be no amblyopia except for imperfect images sent to the visual center and so none without lack of muscular equilibrium, or refractive errors alone or variously combined.

The congenital imperfection view of amblyopia affirms that the visual centers were never normally developed or, if developed, were damaged anterior to birth; it is uncertain whether the defect be in the brain outside or within the visual centers, in the retina or optic nerve fibers. The central scotomas of many cases suggest a pathologic anatomy like that of the toxic amblyopias; they are sometimes for form alone and sometimes for both color and form.

A presumption against the suppression view arises from the fact that in no other instance is it claimed that the brain, by inhibition, actually destroys the functional activity of any organ beyond possibility of restoration. We have many illustrations of imperfectly formed organs, as clubfoot, harelip, colobomas of the iris, retina or choroid, but we know of no organ born with normal development, rendered imperfect by the capricious dislike of the cerebrum.

To determine what light, if any, clinical evidence would throw upon this subject, I studied 7,500 recorded cases of imperfect vision, all from private practice. The standard of amblyopia adopted was an inability to see 20/40 or more after correcting all defective refraction, under full mydriasis, removing all muscular disabilities and securing a normal condition of the general health. Of these above 4,000 were anisometropic, but only sixty were amblyopic; showing that amblyopia was a very infrequent attendant of anisometropia, and so unlikely to be caused by it. Anisometropia was found a frequent condition in all cases of convergent squint, but of the fifty-four amblyopic squint cases, only twenty-two were anisometropic. As there was more than three times as many cases of non-amblyopic as of amblyopic squint, it is plain that anisometropia was an unimportant factor in causing amblyopia in the squint cases. Thus my own observations give no reason to believe that anisometropia is a factor in causing amblyopia. According to the suppression view squint is regarded as an important factor in producing amblyopia, while according to the imperfection view, the amblyopia aids in causing squint.

My records do not exhibit a single instance of amblyopia among cases of vertical squint; though on the suppression view we should have expected a proportion similar to their frequency in other varieties of squint, because there must have been at the beginning an equal degree of confusion among the images sent the brain. Of 219 cases of convergent squint only fifty-four were amblyopic, a small proportion if squint was an active cause of amblyopia. Of fifty-four amblyopes that squinted only twenty-two were anisometropic; so that neither the squint or the squint combined with anisometropia were important factors in producing these cases of amblyopia. Of 127 cases of amblyopia, only fifty-four ever squinted. It thus appears that the majority of cases of convergent squint are not amblyopic, and the majority of amblyopes do not squint; evidence weighing strongly against squint as a cause of amblyopia.

Donders showed that hyperopia accompanied most cases of convergent squint, but farther studies prove the problem far less simple than he thought. Thus, since the normal condition of all eyes at birth is hyperopic, why does not squint occur more frequently? The suppression view says that hyperopia causes confused images, which induce the brain to inhibit the visual centers and thus cause amblyopia. In truth, only few hyperopes squint, and very few are amblyopic. The facts militate against the suppression view here also. Incidentally the facts seem to show that lack of muscular equilibrium rather than either hyperopia or imperfection of the visual centers, is the essential factor in causing squint. In common with others, notably Dr. Valk, I have found that the normal power of the internal rectus to that of the external is as four to one. If this be changed, we have convergent or divergent squint according to the refractive defect; if it remain unchanged there is no squint. On the assumption that squint caused amblyopia, we should expect that the cure of squint by operation, or the correction of existing refractive defects or exercise, or a combination of all, would improve vision, but I am unable to find a single case with central scotoma in which the vision was materially improved. Other cases were improved in the ability to use the eyes for longer periods, but their actual visual acuity was unaltered. On the suppression view we ought to find cases in which the squint or anisometropia remaining uncorrected, the sight became progressively worse to such a degree that even the patient would note the loss; but I have failed to find such cases.

Then, if all eyes were born with normal vision, some observer ought to have noted good vision in an eye which afterward became amblyopic, and thus demonstrated the fact of suppression. I am aware of the difficulty attending such studies, but it has happened to me to occasionally meet with a child so tractable as to admit of a satisfactory determination of its vision and refraction by objective and subjective methods, and I have failed to observe any loss of visual power without a cause recognizable with the ophthalmoscope. Nor have I found any reports of such observations. Hence, we have no direct proof of the suppression of good vision as a cause of amblyopia.

We do find cases of children born with monocular amblyopia. Twenty such I found in my own records, and Schweigger reported ninety-eight having varied defects of refraction. They could not have been caused either by squint, anisometropia or disease, and so must be from congenital defect.

It is claimed that cases of scotoma like those found in squinting eyes are unknown; but my records show twenty cases who never squinted, and yet exhibited a central scotoma of more or less density. Possibly these might be found more frequently, were they carefully looked for. It is reasonable to ascribe these similar scotomas in both squinting and non-squinting eyes to the same cause. That of suppression being untenable, congenital defect must be accepted. As diplopia from ocular paralysis, even in the very young, is a source of distress, we should expect to find some indication of such distress antedate the development of amblyopia, but I have no indication of such distress, though I have often looked for it. Monocular amblyopia, with central scotoma, without squint or anisometropia, would seem to form a combination impossible to account for on any other view than congenital defect. I found four such cases, aged 6, 13, 19 and 45 years. As far as the most searching investigation could determine, there had never been any squint, the scotoma had existed at birth, and there was no anisometropia.

Case 1.—Ava P. Bancroft of Michigan, aged 6 years, brought to me Sept. 4, 1891, by her physician, Dr. Harvey, on account of defective sight. Vision of right eye, $^{20}/_{200}$; left eye $^{4}/_{200}$. A total hyperopia of plus D. 2.50 S. was found in each eye, by the ophthalmoscope and retinoscope, and subjectively confirmed by test objects. The examination was made before mydriasis, under mydriasis and after it had passed off. The correction of the total hyperopia gave the right eye vision $^{20}/_{30}$; the left $^{20}/_{100}$. In the left eye the vision was best at the left of the median line both for color and form. Dr. Harvey had noticed the defective vision three years previous, and no change had been observed by either the doctor or the parents. A re-study of the case two years later showed the vision and scotoma unchanged.

Case 2.—Miss M. A., Toledo, Ohio, aged 19 years, was seen March 13, 1887, on account of intense headaches. Vision of right eye, $^{20}/_{40}$; left eye fingers at six inches and only at the borders of the visual field with any distinctness. Under mydriasis vision of the right eye = $^{20}/_{20}$ with plus D. 2.25 S. ⊂ + D. 0.50 C. ax. 60. Determined objectively by ophthalmoscope and retinoscope the refraction of the left eye was the same as the right, but its vision was not materially increased by its correction. Two years later, patient reported entire relief from headaches while wearing full correction of the defective refraction, but there was no change in vision. Her father, a careful physician, said that he had observed the defective vision pefore any attempts of the child to read letters, but had never noticed any squint.

Case 3.—Miss A. H., Windsor, Ontario, aged 13 years, on June 14, 1881, consulted me for dimness of vision in her right eye. Vision of right eye, $^{2}/_{200}$; left eye $^{20}/_{30}$. Under mydriasis she was found to have a hypermetropia of two dioptrics in each eye. The correction of this increased the vision of the right eye to $^{4}/_{200}$; left eye $^{20}/_{20}$, Jaeger No. 1. The right eye had a large scotoma for both form and color. Five years later the condition was practically the same. No history of squint could be obtained from either patient, friends or family physician.

Case 4.—Miss F. H. H., aged 45 years, consulted me June 10, 1890, for a dimness of vision. Her uncle, an accomplished physician, in whose family she had been born and reared, said that before she was two years old the defect in her left eye was noticeable, and had remained unchanged, but he had never observed any squint.

V. O. D. = $^{20}/_{40}$, $^{20}/_{30}$ w. — D. 1.00 C. ax. 90° ⊂ + D. 0.75 S.; J. 1, w. + D. 2.25 S.

O. S. = $^{20}/_{200}$ w. — D. 1.00 C. ax. 90° ⊂ + D. 0.75 S. J. 13, w. + D. 2.25 S.

In this case the amblyopia was observed long before any attempts to read, there was an absence of anisometropia and any tendency to squint. There was a central scotoma of the left eye like that found in cases of squint.

In each of these cases, as there was complete absence of all the causes of suppression of defective images, the amblyopia must have been from congenital defect.

The data thus far presented show that the existence of amblyopia from suppression is at least doubtful, while that from congenital defect is certain.

There is another class of cases, often confounded with true amblyopia, and so causing much confusion in both thinking and practice. Hence it is necessary to consider it in this connection. Their vision is more or less diminished, there is no scotoma, and they improve under appropriate management. This impaired vision is from disuse more or less complete from a variety of causes, as refractive defects, lack of muscular balance, from constitutional disease, overwork, etc. Any disuse of the eye operates unfavorably upon visual acuity by impairing the power of fixation, by giving imperfect control of accommodation and by rendering the retina easily fatigued. In these cases sight is often improved and occasionally entirely restored by removing the occasion of the disease. Illustrative of this is the following case; that the subject was approaching middle life shows that improvement of these cases is not confined to childhood.

Mr. G. W., a lawyer, aged 36 years, on Aug. 22, 1885, consulted me for poor sight in his left eye. The ophthalmoscope revealed no organic change in either eye. Vision of right eye was $^{20}/_{40}$; left $^{20}/_{100}$. J. N. 4 with right eye, No. 10 with left eye. Under mydriatic, the right eye gave vision $^{20}/_{30}$ with + D. 1.25 C. ax. 180° ⊂ D. 1.00 S.; the left eye $^{20}/_{70}$ with plus D. 1.50 C. ax. 180° ⊂ + D. 3.50 S. On recovering from the mydriatic, with correcting glasses he could read J. No. 1 with right eye and J. No. 4 with left. He was directed to wear the glasses constantly, soak his eyes in hot water ten minutes after concluding work daily. Five months later vision of right eye was $^{20}/_{20}$; left $^{20}/_{30}$. Since, at intervals, his glasses have been changed to meet advancing presbyopia, until Dec. 26, 1896, with glasses, vision of each eye was $^{20}/_{20}$ and J. No. 1.

Not all cases give as favorable results, owing doubtless to lack of faithfulness on the part of the patient, or often from complicating actual defect in the visual apparatus less than occurs in amblyopia, though of the same nature.

In children these cases are often benefited by compulsory use of the bad eye, and of a magnifying glass for near objects, by turning them out of doors as much as atmospheric conditions will permit, and otherwise adjusting their lives so as to develop the greatest physical vigor.

Cases are reported of the speedy cure of the amblyopia of a squinting eye after the destruction of its fellow. Thus, Dr. Walter B. Johnson (*Amer. Oph. Jour.*, January, 1894) reports two cases. In both the good eye was destroyed by accident. In one the squinting eye sufficed to count fingers, but normal vision was established ten days after the accident. The second case was a man 30 years of age, with a history of convergent squint from childhood. At 16 he discovered that he was unable to read as well with the right eye as with the left, and no glass which he could select at the optician's greatly improved his sight. At 17 he was operated on at the New York Eye and Ear Infirmary. On Aug. 28, 1893, while working at his trade, his left eye was so injured by a piece of iron as to reduce vision to the counting of fingers at six inches. The vision of his right eye as tested by Dr. Johnson just after the accident was $\frac{20}{70}$, not improved by glasses. Four days later the vision of the right eye was $\frac{20}{20}$, with or without a plus 1.24 S. Three months later he could merely count fingers with the injured eye at six inches; with the right eye vision was $\frac{20}{20}$, or with plus 1.24 $\frac{20}{10}$.

I have one case of the same nature in which the result was less satisfactory.

E. B., aged 28 years, a laborer in the Penin. Car Works, was brought to me for an injury to his right eye on Nov. 26, 1890. He and his friends said that the left eye always converged, and that he never could see anything with it. The accident had torn the eyelids, smashed through the eyeball, tearing the ciliary body, the lens and sclerotic in such a manner as to practically destroy all sight. Because of the blind left eye every effort was made to save some sight in the right eye, but to no purpose. An examination of the squinting eye, at the time of the accident and many times thereafter, failed to detect any disease of either optic nerve or any of the media, choroid or retina. There was mere perception of light at the periphery of the visual field. This perception did not increase to any appreciable degree, nor has it done so when last seen, three years after the accident.

The explanation of these cases is that one is from congenital defect and the other from disuse. The amblyopia from disuse develops its latent power when the necessity for the same presents; the other having no latent power because of congenital defect, and so remains blind, even after destruction of its fellow eye. In my case, there was certainly a central scotoma, and the history of Dr. Johnson's cases would seem to make evident the fact of a normal field of vision, as no mention is made of a scotoma.

Conclusions. — 1. There are undoubted cases of amblyopia from congenital imperfection; characterized by central scotoma, and being unaffected by any treatment; they are found in eyes that squint and eyes that do not squint, in the hyperopic, astigmatic, the anisometropic and in eyes free from one or more of these defects.

2. There is no positive evidence of the existence of amblyopia from suppression, viz., a loss of sight from the inhibitory action of the brain upon the visual center.

3. There is a class of cases often confounded with amblyopia, characterized by lack of persistent vision, rather than absolute loss; by the absence of scotoma; improved often by proper management, is never congenital; found in all varieties of refraction and all sorts of muscular disturbance; having the same nature as diminished functional power of any sound organ from non-use or diminished use.

4. There is a class of cases in which a congenital amblyopia is still farther crippled by disuse; in these proper management often produces satisfactory results in removing the latter factor.

5. It therefore remains good practice to study every case of amblyopia with or without squint at the earliest possible moment, correct its refractive defects and restore its muscular equilibrium, because, while we can not repair the congenital imperfection, we may remove the disability from disuse and thus secure some improvement of vision.

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DISCUSSION.

Dr. H. M. STARKEY of Chicago in opening the discussion said: The author of the paper has covered the ground so completely from a theoretic standpoint that little remains to be said in that direction. The definition he proposes is new to me and gives quite a different conception of this term from that previously held by me and from that usually held, if one may judge from that given in most text-books. I did not suppose that amblyopia ex anopsia is usually applied solely to cases in which there is inability of the brain to perceive images impressed upon the retina. We have found, as Dr. Connor has, that much confusion arises from considering several different conditions under the same name, but if we restrict the term amblyopia ex anopsia to those cases in which the brain refuses to receive images, we are under the necessity of coining another term for the cases that have usually been so called, while we are not at all certain that we have any cases to which the term may be rightfully applied. As the author has well stated, we have little or no evidence that amblyopia is ever due to suppression, by the brain, of an impression that has been properly conveyed to it. But if the generally accepted meaning is given to this term, namely, that through non-use of the eye the faculty of vision is lessened or lost, we must, unless we ignore facts, admit that such a condition exists. We most of us, I am sure, see cases of defective vision in one or both eyes, in which after careful stimulation of the sight under favorable conditions, the vision improves. There are two classes of these improvable cases. The first class includes young persons having a high degree of ametropia and who, consequently, have never seen clearly. Many such young people, after careful correction of the ametropia, will have vision only one-fourth or one-half normal, but after they have worn the correcting glasses for a few months, vision improves so that they see 50 or 100 per cent. better with the same glass than they did when the glass was first prescribed.

The second class contains persons having strabismus with habitual disuse of one eye. We all recognize that there are many strabismus cases in which there are central scotomata and which are doubtless congenital, in which an improvement of vision is possible; but on the other hand, there are many strabismics in whom a very decided improvement in the vision of the deviating eye can be brought about by systematic and persistent use of that eye. So frequent is this improvement, that it is my custom in treatment of strabismus to first correct any refractive error present and then direct systematic use of the deviating eye, deferring the operation till a later time. And in a considerable proportion of cases, I expect and secure very decided improvement both in the position and in the acuity of vision of the deviating eye. Whether we call the condition present in these cases amblyopia ex anopsia, or by some other term, is beside the question. The condition is present and can be improved. I repeat this statement because I have lately heard a prominent teacher in a neighboring city make the statement to his class, that the amblyopia found in the deviating eye in strabismus is never due to disuse and is never materially improved by operation or by any other means. I will give a brief outline of a few recent private cases illustrating the points I have tried to make. I have the original records of the cases, so that any of the members of the Section who desire to do so may examine them.

Case 1.—Gertrude P., schoolgirl aged 15, referred to me July 17, 1896, by Dr. C. S. Bacon. Vision right eye 20/20 — not improved by any lens; vision left eye 20/200 with 4. D. C. axis 170° 20/30 —. The vision of the left eye has gradually improved until at the last examination, a few days before I came away, she saw with the same lens the 20 line better than she at first saw the 30 line.

Case 2.—Lottie S., schoolgirl, aged 13 years, referred to me Feb. 3, 1897, by Dr. F. C. Schaefer. Vision right eye 20/200 with — 3.50 D. S. ⌣ — 7. D. C. axis 10° 20/70; left eye 20/100 with — 1.00 D. S. ⌣ — 7 D. C. axis 180° 20/50 —. With these lenses, February 24, vision was 20/30, and 20/40, and May 17 it was 20/40 and 20/30 except that one letter was missed in each line.

Case 3 is the most marked case of improvement in a deviating eye that has come under my observation, though numerous others could be cited with marked improvement. Gertrude R., schoolgirl, aged 9 years, was referred to me for convergent strabismus, by Dr. John H. Hollister, July 19, 1894. The vision at that time in the deviating eye was 10/200, and with careful correction under atropia, 20/200. Under proper use of the eye vision steadily improved, being in August, 1894, 20/70, in October, 1894, 20/50, in December, 1894, 20/40, in July, 1895, 20/30 —, in May, 1896, 20/30 +, and in October, 1896, 20/20, and she now sees with this same eye most of the letters in the 15 line at twenty feet.

Dr. D. W. STEVENSON of Richmond, Ind.—I quite agree with Dr. Starkey that the definitions in the text-books no not quite agree with that of Dr. Connor. Amblyopia may exist with three conditions: 1. When there is no central fixation; 2, where there is, and 3, where there is lack of use. A person may have fairly good vision and yet not have central fixation. And here I would urge in examining children with muscle trouble, even if only 2 or 3 years of age, that it is important to treat them as thoroughly and carefully as older people, for if we can only guide that child to central fixation, it may prevent disfigurement in later life. Central fixation can only be learned in childhood. You can not expect a child whose vision has been blurred to learn central fixation in after years, for it can probably only be learned in the first few years of life. We note the difference in operating upon congenital and senile cataracts; in the latter though it may have lasted forty years, if he learned central fixation in youth he will still be able to fix. The important point we ought to learn is to look after these patients year by year until we operate upon them, and we ought to take every means to force them to learn central fixation.

Dr. C. H. THOMAS of Philadelphia—I remember the case of a child 4 years of age, who was able to be tested by test-types almost as well as an adult. He had strabismus on alternate days. It was on this account that I tested his refraction under mydriasis and found him practically emmetropic, full 20/20 in each eye. After a year or more the strabismus settled down to a strong convergence of the left eye. This continued a year or so when I discovered that he was losing his vision in the left eye, it had fallen to 20/30. I then operated and the relief obtained was considerable from the complete section of one internus, but there was something like 8 degrees remaining uncorrected. I performed a partial tenotomy of the fellow eye and obtained perfect balance. Within a year the vision was restored in the amblyopic eye and remains perfect to this day. He is now a grown man and I have examined the eye within the last few days; his vision is full 20/20 in either eye. I had him under careful observation in the stage of perfect vision, in the stage of developing amblyopia and in the stage of perfect recovery.

Dr. J. L. THOMPSON of Indianapolis—While you may operate upon a man for cataract, and he will have just as good vision in one eye in which cataract has existed for a long time as in the one of shorter duration, I take it that nature seems to abhor a deviation as she does a vacuum.

Dr. WALTER B. JOHNSON of Paterson, N. J.—I have been interested in this subject for a long time. None of us would want to make the statement that there is no such thing as congenital amblyopia and not many of us would, in the light of occurrences, be willing to say there is no such thing as amblyopia ex anopsia. I think the suggestion that Dr. Connor made in regard to cases in which amblyopia, apparently from suppression, had developed, has been substantiated in many instances. I reported a case two years ago, at the American Ophthalmological Society, of a girl of 12 who came to me first with diplopia and in the course of a short while passed from observation. The diplopia having passed she was comfortable, and in the course of a number of years I saw her again. Her vision at first had been perfect, but in the eye which is now squinting it is only 20/70. Now from the other side of the question, coming from lost to improved vision, I have reported two cases, one to the American Ophthalmological and one to the Ophthalmic Section of the Academy of Medicine. In both cases the good eye was lost, one requiring enucleation and the other by traumatic cataract. In each case the vision, in what had been the poor eye, returned to normal within three weeks. I know that in these cases we did not see anything with the ophthalmoscope, and, as Dr. Thompson has said, we can not yet view the cerebral apparatus.

Dr. G. C. SAVAGE of Nashville—Nature in my judgment has two methods of preventing diplopia; one the deviation of the visual axis and the other the suppression of the object mentally. In the lower forms of heterophoria and in orthophoria the method adopted is to cause the visual lines to cross, but in the higher degrees of heterophoria the other method is the one chosen, and it is applicable only in the earlier years of life. Every one of us knows that a squint developed late in life is always attended by double vision. It is too late for the mind to bring about the process of suppression and the patient must get on with double vision unless he covers one eye. The author of the paper has stated that there are cases of amblyopia in which there is no perceptible squint. We have other muscles than the recti.

I want to place myself on record in regard to one point about squint, that is, that when we have a squint that has existed from early life and yet vision as good in one eye as in the other, we are tampering with a case that will confuse us as we go further with it and which is almost impossible of correction.

Dr. G. E. DE SCHWEINITZ of Philadelphia—It was with much interest that I heard Dr. Connor's classification and investigation of the scotomas present in these cases. I have made a similar study. You find cases of squint, with amblyopia, in which the ophthalmoscopic picture, the visual field, etc., are perfectly normal; the vision can be improved with exercise; in others in which there is a distinct scotoma, neither exercise or anything else improves the vision. In a third class in which there is not an entirely normal ophthalmoscopic appearance, inasmuch as there are some changes about the macula, and the visual fields are similar to those produced by retinal tire the visual acuity is capable of a certain amount of improvement.

Dr. LEARTUS CONNOR—You see from the discussion how necessary it was to define what we meant. The amblyopia to which I referred, you will remember, I characterized as being always attended with central scotoma. The cases reported here were not so attended. Now, to confound such cases, that are due to defects of refraction or lack of muscular balance, is simply confusing conditions, and I think it very important to use the same measure in all our work in these cases. I started out, too, with the idea that the ordinary definition was the correct one, but I found it used very differently by those who believe in the suppression theory. I correct, under mydriasis, and attain all the improvement I can, correct all the muscular equilibrium and then if there is loss of vision I report it as amblyopia. Such cases are absolutely incapable of benefit. They may be attended by the results of disuse as in other organs.

REPORT OF EYE EXAMINATIONS IN THE MINNEAPOLIS PUBLIC SCHOOLS.

TOGETHER WITH REPORTS OF THE EXAMINATIONS OF THE MOTORMEN OF THE TWIN CITY RAPID TRANSIT COMPANY, AND THE LOCOMOTIVE ENGINEERS OF THE MINNEAPOLIS, ST. PAUL AND SAULT SAINTE MARIE RAILROAD.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY FRANK ALLPORT, M.D.
CHICAGO, ILL. (FORMERLY OF MINNEAPOLIS).

While it is true that a large proportion of school children possess inadequate distant vision, or irksome close vision, or but little vision at all, and are thereby unequally provided with a most important sense, which places them at a decided disadvantage in the world's arena, with its struggling, pushing applicants for place and power, and while it is of the utmost importance that such deficiencies be overcome by the application of modern ophthalmologic therapeusis, yet the search by our profession for an efficient and practical remedy for the general detection and relief of such infirmities, has not been crowned with success.

Undoubtedly ideal results could be obtained in detecting and relieving ocular defects in school children, through their systematic and personal examination by properly qualified oculists appointed for such work by boards of education, as was accomplished in Philadelphia some years ago by Risley, Randall and others. But the "City of Brotherly Love" is happily possessed of a singularly united and harmonious profession, with an inherent *esprit du corps*, rendering possible many professional movements practically unfeasible elsewhere, under circumstances of professional jealousy and strife. The writer feels therefore that the Philadelphia plan, while most desirable, is not generally possible, and that another method, simple, inexpensive and reasonably accurate in character, possible of manipulation by the laity, applicable to all cities, of a non-compulsory nature, giving free liberty as to choice of consultant and rendering impossible personal contact between a board appointee and the school children, except as they come as private or dispensary patients, should be devised and endorsed by ophthalmologists.

With this end in view the writer, Feb. 6, 1895, presented a paper to the Minnesota Academy of Medicine, which was published in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, March 2, 1895, embodying a plan for the systematic examination of school children's eyes by school principals. This plan was received favorably by the Academy and a formal request was forwarded to the Minneapolis Board of Education, requesting its adoption, but owing to reasons probably satisfactory to itself, the Board practically tabled the request until the election of the new Board in January, 1897, when it was promptly adopted and the writer appointed as Board oculist. But in the interim the writer has been given an opportunity of teaching the method at the University Summer School, and before the senior class in the department of pedagogy in the Minnesota State University, with the result of seeing it quite generally and favorably received in the University and many adjacent cities.

Drs. Harlan and Wood of Baltimore have used a similar plan, during the past two years, in the public schools of that city, and reported flattering results at the last meeting of this Section in Atlanta.

The expense in Minneapolis has not equaled $100, a little printed matter being the only requisite, as no salary is involved. The plan, though necessitating some extra labor, has been easily carried into practice, and the principals and teachers are its warmest advocates, feeling as they do, that it is a beneficent movement and will eventually lighten their labors, as the children are placed in better conditions for work and application.

The preliminary eye tests are to be made annually as near the commencement of the fall term as possible, in order to give ample opportunity for the observation of results. The examination should not be conducted in the presence of other scholars, as familiarity with the letters leads to incorrect responses. Children already wearing glasses should be tested with such glasses on the face, as this tends to mitigate any possible opposition from parents and attendant oculists, on the ground of meddlesome interference. It has been found useless, laborious and impracticable to examine first grade children, consequently they may be excluded from the tests.

One of the chief obstacles to success in the Minneapolis tests has been the consulting of opticians instead of oculists, through the fulsome circulars and advertisements of the former which were thrown broadcast as soon as the tests began; and the prevalent impression that this has been merely a test for glasses, and not for the development of ocular diseases in general. This fact leads me to urge principals and teachers to explain and emphasize these matters preliminary to the tests, and from time to time during the year.

The plan is briefly as follows: A superintending oculist shall be appointed by the Board of Education, whose duties shall be to superintend the details of the plan. He shall each year, at the beginning of the fall term, deliver a lecture to the principals upon practical ocular anatomy, physiology, refraction and its errors, the general use of the eye. etc., and shall demonstrate the plan upon from twenty-five to fifty pupils furnished for the occasion. He shall afterward be accessible to the principals for advice and counsel, and shall finally receive the principals' reports and systematically submit them to the Board, together with deductions, recommendations, etc. It will be observed that in an office of this kind there will be but little opportunity for adverse manifestations of professional jealousy, or accusations of unjust pressure upon children from business motives.

It should be first ascertained if the child habitually suffers from red or inflamed eyes or lids, after which the visual tests should be conducted. Snellen's test card should be used for the purpose of uniformity, and the vision of each eye recorded in the proper line of the statistic blank, as 20, 30, 40, 200, 0, etc., instead of 20-20, 20-30, 20-40, 20-200, 20-0, etc., being more intelligible to the laity, bearing in mind that only defectives need tabulation. The child should be given credit for the smallest line of which he sees a *majority* of the letters, as it has been found inexpedient to be too strict in this particular. It should then be ascertained if the child *habitually* suffers from asthenopia after study, being careful that a correct and thoughtful answer has been secured. This question develops the existence of troublesome hypermetropia, astigmatism, muscular anomalies, etc., while the former question indicates the presence of myopia, astigmatism, cataracts, choroiditis, most cases of strabismus, etc.

If inflamed eyes are not habitual, the vision is normal in *both* eyes and actual asthenopia is not present, the child is not further molested until the next fall examination. But if inflamed eyes are habitual, or the vision is defective in either eye, or asthenopia develops, a card of warning should be sent to the parents urging that an oculist be consulted at his office or dispensary. The principals and teachers should bear these cards in mind and from time to time urge the children and their parents to heed them, though their influence should not be exerted in favor of any particular oculist.

These cards urge the parents to consult an "eye doctor," which is rather a broad expression, but rendered necessary by the fact that many intelligent people do not distinguish between an oculist and an optician, and the cards will go into many homes where dense ignorance prevails. Upon the backs of the cards should be printed the names, addresses and office hours of the different dispensaries.

The fact should in due course of time be chronicled as to whether a pupil has consulted an oculist or not, and the effect that such a consultation has upon his school life, character, physical condition, etc., and when the report is thus completed it should be handed to the Board oculist for presentation to the Board of Education.

This last spring, 25,696 children were thus examined in Minneapolis, of which 8,166 or 32 per cent. were deemed ocularly defective. Amongst these 6,451 *eyes* were found possessing a vision of 20-30; 2,256 *eyes* had a vision of 20-40; 1,214 a vision of 20-50; 1,130 a vision of 20-70; 745 a vision of 20-100; 447 a vision of 20-200 and 43 a vision of 20-0. Four thousand four hundred and seventy-two children complained of distinct asthenopia after study. The individual percentages of defectives in the different schools have ranged all the way from 11 to 67 per cent, the latter occurring in a conspicuously poorly lighted and insanitary building.

One of the disadvantages of this plan is the impossibility of obtaining the most accurate and valuable statistics, such as would be possible if all scholars were scientifically examined by a united force of oculists. But enough is already positively known through the information of principals, duly chronicled in the statistic blanks received May 1, to fully warrant the statement that already over 1,000 pupils have been distinctly benefited through the tests, and the matter is only in its infancy as many children will subsequently seek advice when prejudice, ignorance and carelessness have been overcome, or the days of the long vacation are at hand, with more leisure to devote to ocular consultations.

Copies of the statistic blanks and warning cards are here submitted:

MINNEAPOLIS PUBLIC SCHOOLS.

MINNEAPOLIS, MINN 189

Dear Sir: Your child's eyes have been examined by me this day. I believe it advisable to consult an EYE DOCTOR of recognized standing, and if you feel unable to consult one at his office, a Dispensary will do the work free of charge. Respectfully, ...

[OVER.] Principal . . . . School.

[Front of Warning Card.]

FOR THE POOR.

UNIVERSITY DISPENSARY—On the University grounds, Medical Building. Hours 12 to 2 P.M.

UNIVERSITY HOMEOPATHIC DISPENSARY—Seven corners. Hours 12 to 2 P.M.

ASBURY HOSPITAL DISPENSARY—Corner Sixth Street and Ninth Avenue south. Hours 12 to 2 P.M.

ST. BARNABAS HOSPITAL DISPENSARY—Corner Sixth Street and Ninth Avenue south. Hours 12 to 2 P.M.

GOOD SAMARITAN DISPENSARY—Corner Seventh Street and Sixth Avenue south. Hours 12 to 2 P.M.

[Back of Warning Card.]

MINNEAPOLIS PUBLIC SCHOOLS.

EYE EXAMINATIONS.

. . . . School. Date . . . . 189 . .

Principal . . . . Examiner . . . .

Entire number of pupils examined . . . .

Number advised to consult an Oculist . . . .

INSTRUCTIONS FOR EYE EXAMINATIONS.

The examination should be made privately and singly, in a room apart from the general school session.

Ascertain if the pupil habitually suffers from inflamed lids or eyes.

Children already wearing glasses, should be tested with such glasses properly adjusted on the face.

Place a card of Snellen's Test Types on the wall in good light; do not allow the face of the card to be covered by glass.

The line marked XX (20) should be seen at twenty feet, therefore place the pupil twenty feet from the card.

Each eye should be examined separately.

Hold a card over one eye while the other is being examined. Do not press upon the covered eye, as the pressure might induce an incorrect examination.

Have the pupil begin at the top of the test card, and read aloud down as far as he can, first with one eye and then with the other.

If the pupil does not habitually suffer from inflamed lids or eyes, and can read a *majority* of the XX (20) test type with *each* eye and does not, upon inquiry, complain of *habitually* tired and painful eyes or headache after study, his eyes may be considered satisfactory, but if he habitually suffers from inflamed lids or eyes, or can not read a *majority* of the XX (20) test type with *both* eyes or *habitually* complains of tired and painful eyes or headache after study, a card of information should be sent to the parent or guardian.

Please examine your entire school by this method, but only such pupils as are thought necessary to send to an Oculist need tabulation in this blank.

May 1 of each year please complete this report and send it to Dr. C. M. Jordan, Supt. of Schools, and a duplicate to the Board Oculist, Dr. Frank Allport, 602 Nicollet Avenue, Minneapolis, Minn.

This will afford you an opportunity to examine your pupils, to note if they follow your suggestions, with regard to consulting an Oculist, and if so to observe the effect upon the pupil's conduct, health, application to study, etc., which you will please carefully, but briefly, note in the proper place in this sheet.

First grade children need not be examined.

No . . . . Name . . . . Sex . . . . Age . . . .

Column 1.—Does the pupil habitually suffer from Inflamed Lids or Eyes?

Column 2.—State number of last line seen by pupil with Right Eye.

Column 3.—State number of last line seen by pupil with Left Eye.

Column 4.—Do the Eyes and Head habitually grow weary and painful after study?

Column 5.—Did pupil consult an Oculist and follow his advice?

Column 6.—Briefly describe the results of treatment.

I beg leave at this time to also report some interesting examinations made the past spring. The writer is not aware as to whether men who run electric or cable cars through our cities are examined as to their ocular and aural condition or not, but at his suggestion the Twin City Rapid Transit Company of Minneapolis and St. Paul, operating electric cars in those cities, requested him to examine the eyes and ears of their motormen. The writer feels there can be no question as to the extreme necessity for such examinations in men driving cars through our crowded thoroughfares, and believes that such examinations should be made obligatory with street car companies, in order to protect the life and limbs of citizens. The writer believes that many accidents could thereby be avoided, and that it would be an excellent investment for all street car companies to know positively that their drivers possess good eye-sight and hearing, and to have on file certificates therefor from reputable examiners, producéable in possible litigation.

The standard adopted by the writer in these examinations was, that at least one eye should possess a vision of 20-30; that a watch should be heard by at least one ear, at a distance of one foot, and that an ordinarily low voice should be heard by at least one ear; and that color blindness should not exist. The writer is confident that these exactions were sufficiently lax, possibly too much so, but the company requested that as much leniency as possible should be shown to old employes, but that *new* applicants for the position of motormen should be subjected to the closest scrutiny.

At the request of the writer the company also agreed to allow old motormen to wear glasses while on duty, in case they were found necessary, but will not extend such indulgence to new applicants.

The writer examined 218 motormen, and found but one color blind individual in that number. Several men had a weak chromatic sense, but were not distinctly color blind. All of the men possessed sufficiently accurate hearing to enable them to carry on their work. Ten men were found with vision below the standard. I briefly submit their records:

No. 1. J. H. V. R. E. = 20/40, with — 0.75 cyl. ax. 90° V. = 20/20.

V. L. E. = 20/60, with — 1.25 cyl. ax. 90° V. = 20/20.

No. 2. W. H. P. V. R. E. = 20/40, with + 0.50 cyl. ax. 90° ⊃ — 1.00 cyl. ax. 180° V. = 20/20.

V. L. E. = 20/60, with + 0.50 cyl. ax. 90° ⊃ — 1.25 cyl. ax. 180° V. = 20/20.

No. 3. J. S. V. R. E. = 20/60, with + 0.50 sph. ⊃ + 0.75 cyl. ax. 180° V. = 20/20.

V. L. E. = 20/60, with + 0.75 sph. V = 20/20.

No. 4. C. H. H. V. R. E. = 20/100, with — 3.00 sph. ⊃ — 1.75 cyl. ax. 170° V. = 20/20.

V. L. E. = 20/100, with — 3.00 sph. ⊃ — 2.00 cyl. ax. 10° V. = 20/20.

No. 5. M. K. V. R. E. = 20/100, with — 1.25 cyl. ax. 180° V. = 20/30.

V. L. E. = 20/60, with — 0.25 sph. ⊃ — 0.75 cyl. ax. 180° V. = 20/30.

No. 6. M. F. V. R. E. = 20/60, with — 1.25 cyl. ax. 90° V. = 20/30.

V. L. E. = 20/60, with + 2.00 cyl. ax. 90° V. = 20/20.

No. 7. C. A. V. R. E. = 20/70, with — 4.00 cyl. ax. 180° V. = 20/30.

V. L. E. = 20/70, with — 4.00 cyl. ax. 180° V. = 20-30.

It will be observed that all of these seven men were enabled, by the aid of properly adjusted glasses, to obtain suitable vision for their occupation. They were therefore allowed to resume their work, with the distinct understanding that they should obtain the glasses, which should be inspected by the writer, and should always wear them when on duty.

Three cases possessed vision so poor as to render them unsafe for the company to employ, and a menace to the public. Their records are as follows:

No. 1. J. L. V. R. E. = 20/50. Unimproved by glasses. Opaque cornea.

V. L. E. = 20/200. Conical cornea.

No. 2. J. T. V. R. E. = 20/50. Unimproved by glasses.

V. L. E. = 20/50. Unimproved by glasses.

No. 3. D. J. V. R. E. = 20/60.

V. L. E. = 20/200. Vision can be slightly improved in each eye by glasses, but not sufficiently to render him a safe employe.

These last three cases, then, were in the interest of the company and of the public, unconditionally condemned and removed from their positions. The company, however, indulgently gave them other employment, so that no hard feelings were engendered.

It will therefore be seen that, out of 218 men, seven were required to wear glasses, three removed on account of imperfect and uncorrectable vision, and one because he was color blind.

In conclusion the writer begs leave to report the examination of ninety locomotive engineers of the Minneapolis, St. Paul and Sault Sainte Marie Railroad. About one hundred still remain to be examined, but have not presented themselves up to the present writing.

When the writer presented the subject to the manager, he was met with the opinion that the men had already been examined by one of the railroad employes, and as such matters were very simply performed he regarded it as sufficient. But upon the writer's urging the value of a medical man's certificate, in case of accident, to say nothing of a sense of added security on the part of the road for a comparatively small outlay, together with the firm belief that such non-professional examinations, while frequently correct, were in no wise reliable, the manager being a good business man, as most railroad men are, quickly ordered the work to be done. The standard adopted was that a man should have at least a vision of 20-30 in one eye, should hear a watch tick at a distance of one foot and low conversation in at least one ear, and should not be color blind. The manager gave permission for defectives to wear glasses when they were capable of bringing vision to a satisfactory standard. This rule applies only to old employes and new applicants will have to pass a more rigid examination. The writer desires to emphasize the fact that all these men have passed the regular railroad examinations as to sight, hearing and color sense, and the results amply confirm the opinion that such examinations are totally superficial, unreliable, inadequate and dangerous. All men passed the aural examinations.

I submit the record of those having insufficient vision:

No. 1. E. D. V. R. E. = 20/60, with + 1.75 sph. V. = 20/20.

V. L. E. = 20/70, with + 2.25 sph. V. = 20/20.

No. 2. J. McG. V. R. E. = 20/40, with + 1.00 sph. ⊃ + 0.50 cyl. ax. 5° V. = 20/20.

V. L. E. = 20/40, with + 1.00 sph. ⊃ + 0.50 cyl. ax. 180° V. = 20/20.

No. 3. M. D. G. V. R. E. = 20/70. Iritic adhesions. No improvement with glasses.

V. L. E. = 20/40, with — 0.50 sph. ⊃ — 1.00 cyl. ax. 15° V. = 20/20.

No. 4. E. W. S. *Has been a locomotive engineer for twenty years.* V. R. E. = *20/100*, with — 4.50 cyl. ax. 100° V. = 20/30.

V. L. E. = *20/200*, with — 4.50 cyl. ax. 85° V. = 20/20.

He states that he sees as well now as he ever has, and the above glasses were simply a startling revelation to him. It is remarkable that he could have passed any kind of a previous examination and could have retained his position for so many years. He claims never to have had an accident attributable to poor vision. He must have been favored with good firemen to assist him in noticing signals, etc., and must have been a man of good judgment and blessed with unusual luck.

No. 5. M. B. V. R. E. = 20/100, with + 1.75 sph. ⊃ + 0.50 cyl. ax. 180° V. = 20/20.

V. L. E. = 20/100, with + 1.75 sph. ○ + 0.50 cyl. ax. 180° V. = 20/20.

No. 6. R. B. V. R. E. = 20/40.

V. L. E. = 20/30.

Mention is made of this case because he was under the writer's care in August, 1896, for tobacco amblyopia, at which time his vision was dimly 20-50 in each eye. He recovered with above result, but at this last examination he pledged himself to the superintendent and the writer that he would absolutely abstain from tobacco and intoxicants, and he retained employment upon this understanding.

No. 7. J. H. This man is color ignorant, and at first was thought to be color blind. After several days of instruction he was able to unerringly separate the worsteds; but it is difficult to understand how he passed the road examiner, for he puzzled four oculists.

No. 8. L. G. Distinctly color blind.

No. 9. D. N. B. Distinctly color blind.

It will therefore be seen that out of ninety men, eight defectives were found. No. 6, R. B., who had tobacco amblyopia, will not be so classed. Four men were fitted for their work with glasses. One man was educated in colors, and two men were unreservedly removed from their positions on account of unmistakable color blindness. The road has now directed their firemen to apply to the writer for examination, which is eminently proper, as they occupy important positions and are prospective engineers, and it would be a hardship to them to allow them to serve their apprenticeship with high hopes for the future, and then throw them out when they apply for an engineer's examination.

No . . . . MINNEAPOLIS, MINN . . . . 189 . .
I have this day examined . . . . with the following result:
Vision . . . . Color Sense . . . . Hearing . . . .
I would recommend his employment as . . . .
Remarks . . . .
FRANK ALLPORT, M.D.

I submit the cards used in these tests, which are of a character to be easily understood by railroad authorities. The word "good" or "bad" is written after the words "vision," "color sense" and "hearing." The railroad authorities do not care to enter into any technicalities. They simply want to know if a man can pass the examination or not. The examiner can make all desirable observations in his private notebook, as they may be useful for future reference. There should be a space between the words "would" and "recommend," where the word "not" may be inserted if the applicant is deemed defective.

Stewart Building, State and Washington Streets.

DISCUSSION.

Dr. HERBERT HARLAN of Baltimore—There is not a great deal for me to say in regard to Dr. Allport's method of testing the eyes of school children because it is almost identical with the method he published a few years ago, and which Dr. Woods and I worked out independently about one year ago. I stated a year ago that as a result of our experience there were several objections to our method. One was that the blank that was sent to the parent by the teacher, after the vision of the child had been found to be less than $^{20}/_{30}$, had a return blank to be filled by the oculist. They were rarely filled, and when they were, it was frequently by opticians and others, and so this year it was omitted. On the notice sent to the parents the wording was something like this: You are advised that this child's vision is below what the Board considers necessary to the proper performance of school duties, and you are advised to consult a physician who makes a specialty of eye diseases. This has been an improvement. The second objection was that last year the examinations were all made at the beginning of the school year, and within three or four weeks every dispensary was filled and it was absolutely impossible for any proper refraction work to be done, so most of those children did not get the benefits they should have had. It has been arranged this year to distribute the work over the eight or nine months of school life. We also found it necessary to drop all the tests for the first grade, which contained all the younger children. We have records of 40,631 cases covering the other seven grades. Blanks were sent to all having less vision than $^{20}/_{30}$ in the better eye. Many of them paid no attention to the notices last year, but the School Board holds that all it is required to do is to place the responsibility upon the parents. It has been shown, quite satisfactorily to me, that in some of the badly lighted schools vision has deteriorated within one year, and I think within five years we shall be able to show what this has been.

Dr. LEARTUS CONNOR of Detroit—Stimulated no doubt by the researches of our friends in Philadelphia many years ago, and those in Minneapolis that have been reported to us, something has been done in many other places. In Detroit it took this form: The Board selected a person interested in child culture, to make the examinations. Those familiar with the latest phase of teaching know that there are people who think it proper also to study the physique of children and to encourage proper teaching in this direction. I think there should be hung over the top of the door of every schoolhouse, "Factory of American Citizens." This person told me last fall that in her own observations she had detected, out of 35,000 children, 3,000 who were unfit to do the work a child ought to do in school. Some could not see, some could not hear and others were defective in other ways. She came to me to see if something could not be done to help them, and as the Children's Free Hospital is organized for that purpose we did all we could. The principals of the several schools have organized a Mothers' League, and they give the mothers of the children, once a month in the schoolhouse, a lecture or demonstration by some physician or scientist. We never shall make progress until we can carry the mothers along with us in this work. The work in Philadelphia had its best fruition in bringing the parents to realize what they could and ought to do to help their children. One of the best contributions to modern medicine was that of Dr. Risley, who showed how correction of the early defects prevented the malignant troubles of later years.

Dr. S. D. RISLEY of Philadelphia—I have said so much on the subject it seems hardly necessary to rehearse the views I have so long entertained. I do feel like expressing the great gratification I feel on seeing this good missionary work being done in the schools. I regard it as of the greatest practical value. I agree with Dr. Allport that the examination must be made in such a way that no suspicion can attach as to any personal benefit to the doctor. If it does, the profession becomes sensitive about it and the family will think there is some ulterior purpose. I would say also that much the same plan as that suggested by Dr. Allport has been outlined in my article on school hygiene which is just about to appear. It is, I am sure, the correct plan.

Dr. G. EDGAR DEAN of Scranton, Pa.—I would call attention to one thing that has not been brought out; that is that the railroad men often while needing glasses do not wear them for the fear of incurring the displeasure of the railroad officials, and I have noticed repeatedly that they refrain from having their eyes examined on that account.

Dr. WILLIAM THOMSON—(Reading a note on the subject) In 1880 the Pennsylvania Railway adopted a complete system prepared by the writer to eliminate from the service men with poor vision, color blindness and deafness, which fully answered the purpose, is yet in use and has been widely copied by other roads. Its details are probably known to you, having been widely published. In the future the roads may be able to place all their examinations in the hands of professional experts who will improve upon the simple apparatus now in use, which supposes one ophthalmic surgeon only to supperintend its application. It is believed that a brief report of the extent of the reform will be of interest. From 1880 to 1894 the example of the Pennsylvania Railway had been followed and their system adopted by twenty-four corporations, which controled 38,786 miles of track; eleven companies, using other methods for detecting color blindness, controlled 15,679 miles; thirty-one companies, controlling 29,428 miles, used no tests, and thirty-four companies made no report. The investigation was limited to one hundred of the main roads, controlling 129,970 miles. The so-called color-stick had met with but one criticism, namely, that it was too formal in its arrangement of skeins. This led the writer to propose "A new wool test," described in the *Medical News* in August, 1894. This has been used with the older color-stick and from the best sources of information at hand I estimate that up to Jan. 1, 1897, when the total mileage of the country was 180,955 miles, and the employes nearly a million in number, this entire system had been adopted by seventy-eight corporations having under their control a total mileage of 106,395 miles of track. The publication of these facts may aid us in persuading the officers of roads now unprotected to adopt either this or some other system for disposing of dangerous employes.

Dr. G. E. **Seaman** of Milwaukee—I do not desire to discuss Dr. Allport's paper in a general way, but only to criticize briefly this card, which I understand is given to every pupil with defective vision. It would seem to me that in view of the spread of dispensary abuse in the cities this is a mistake. It would seem better, if this system is adopted, to take some pains to find out the financial standing of the people, and the teacher knowing the parties well might easily do this and give a card with the address of the dispensaries only to the very poor. If this card is given out to every one it will lead to more dispensary abuse.

Dr. C. D. **Westcott** of Chicago—The dispensary abuse can be avoided, and the going to opticians also, by suggesting to the parents that they consult the family physician; he is the one I think should always advise in regard to consulting a specialist and the matter then becomes very simple.

Dr. E. E. **Holt** of Portland, Me.—If the suggestion of the last speaker be adopted we should have to do some pioneer work among the family physicians.

Dr. **Allport**—I have been much gratified by the commendation of the different members of the Section concerning this method of examining the eyes of school children. I have been especially glad to hear what Dr. Risley has to say upon the subject. The fact that he has probably had more to do with the personal examination of school children than any of us, adds especial significance to his endorsement of this plan.

The method which Dr. Risley adopted in Philadelphia some years ago was the *personal* examination of all school children in the city by *himself* or his *associates*. The plan which I advocate is the *preliminary* examination of all scholars (except those in first grade) by *school principals*, and then the sending of those deemed defective to competent authorities for further examination. I wish to distinctly emphasize two points: 1. That the method advocated in my paper is not perfect and can never be perfect. The fact that children are simply examined by a school principal and then, if found defective, sent to various sources for further examination, renders the accumulation of scientific data an utter impossibility. Defective children under this method are given a card of warning which they are to take to their parents, urging upon them the necessity of consultation with an oculist. Some of these children may go to a competent ophthalmologist, either at his office or dispensary; some may go to their family physician, who will undertake their treatment; some may go to an optician where they may receive ignorant or dishonest advice; others may go to a department store where worse conditions exist, and still others may not consult anybody. Under these divers and complicated conditions it will be manifestly seen, without further explanation, that the accumulation of scientific data will become an utter impossibility. 2. This method is not advocated for the accumulation of scientific data. It is advocated for the purpose of benefiting the coming generation, and I am perfectly satisfied that if the plan becomes generally adopted that, while subject to many criticisms, while being manifestly and necessarily imperfect, and while not facilitating the accumulation of scientific data, it will inevitably accomplish an enormous amount of good in these United States, and be the means of placing hundreds of thousands of children in better condition to face the various problems of life.

Dr. Harlan's blanks, which he presented at the Atlanta meeting, and has spoken of today, would undoubtedly be valuable if they could be followed up; but inasmuch as these defectives pass into the hands of a great variety of men, who may be friendly or unfriendly to the plan, or broad or jealous in their natures, it will be manifestly impossible to depend upon the different ophthalmologists and institutions in any city to fill out these blanks in a manner to make them at all valuable. Besides this, they are an additional burden upon the principals, who will be sufficiently burdened by the tests themselves and the rendering of the most primitive reports. It has been my aim to eliminate all forms of complication from this plan, and to make it as meager and simple as possible, hoping by this policy to secure its general adoption.

One of the gentlemen has objected to the printing of the names of the dispensaries upon the backs of the cards, fearing a congestion of charity patients. This course has been taken advisedly, after one year's experience. In the first place it is a great convenience to the principals and scholars, and in the second place it emphasizes the fact that free dispensaries are in existence, where people can get proper advice gratuitously, which I am confident will greatly lessen the number of people seeking the advice of opticians. If the dispensaries suspect that individuals are not of the class that should patronize dispensaries, they can very easily eliminate them.

I hope that this ocular examination in schools will lead to tests for color blindness, deafness, and even more extensive physical examinations; but have desired first to secure the adoption of the plan referred to in my paper, and then gradually add to it other material.

SURGERY ONE HUNDRED YEARS AGO.

AN HISTORICAL STUDY

BY DR. GEORGE FISCHER.

DEDICATED TO THE GERMAN SURGICAL ASSOCIATION.

TRANSLATED FOR THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION
BY CARL H. VON KLEIN, A.M., M.D.

XX.—GUNSHOT WOUNDS, AMPUTATION, EXARTICULATION, RESECTION.

(Concluded from p. 146.)

Let us return to the technique of *amputation* and place a knife in the hand of a German surgeon of the first and second halves of the century in order to learn the most customary methods of operation.

In Heister's time six assistants aided the operator, who girded himself with a "towel." A tourniquet was applied to the main artery and the nerves also compressed with it, in order to lessen the pain. The skin was drawn back as far as possible and a linen cord the breadth of the finger adjusted tightly around the limb somewhat above the point of operation that the muscles might be held together and not cut unevenly. When the patient had drunk a glass of wine or "Kraftwasser," the surgeon made a circular incision with a small knife through the skin and some of the muscles, had the skin drawn up still further and at its edge completed the circular incision with a large curved knife. On the forearm and leg a pointed two-edged knife separated the interosseous muscles. The periosteum was quickly pushed up, the musculature held back by a slit piece of linen and the bone sawed off as high as possible. On the large extremities the vessels were ligated or sutured, but it was thought that in the forearm the hemorrhage could be arrested by a piece of vitriol, a remedy, which indeed, along with the hot iron, was not widely disseminated on account of the pain and danger. Some considered ligature not generally necessary and awaited the closing of the vessels by the coagulated thrombus (Schaarschmidt). A bleeding was made either just before the amputation (Wreden) or, if little blood was lost by the operation, immediately after it (Z. Platner), or when severe inflammation ensued (Heister). The wound was bandaged with dry lint, a piece of puff-ball laid over that, then a fresh calf's or pig's bladder and several compresses. Only on the following day was the tourniquet loosened little by little and, provided no after-hemorrhage occurred, the first bandage was not removed before the fourth day. Later the wound was bound with digestive salve or balsam. At that time they amputated: 1. In case of mortification. 2. In entirely crushed limbs. 3. In incurable caries and spina ventosa. 4. In injures of the art. brachialis and cruralis, if the hemorrhage could not be controlled. 5. In carious and deformed limbs as soon as they became painful.

In the second half of the century some surgeons bound a cord as tightly as possible around the limb just below and others just above the point where the amputation was to be made. An assistant laid upon the main artery a flattened linen roll and pressed it close with both thumbs. This digital compression, introduced by Louis and adopted by Desault, Richter and the two Siebolds, was preferred to the tourniquet because the latter obstructed the free drawing back of the soft parts before sawing the bone. Instead of the curved sickle-like knife, which Schmucker, for example, still employed, the disadvantages of which Desault was one of the first to point out, the straight knife was used (Pott, B. Bell and Richter). The skin was cut by a special movement of the knife and afterward drawn backward as far as possible, and at its edge a circular incision was made in the muscles as far as the bone. The muscles were also drawn far upward by a slit compress of linen, parchment or leather, so that the bone could be sawed off as high as possible and its protrusion be prevented. The periosteum was cut but it was considered unnecessary to push it back; then the bone was sawed off and the large vessels bound up by means of artery pincers, the small ones with Bromfield hooks. (In regard to the arrest of the hemorrhage we refer to Chapter 14.) One sought first to report a healing by prima intentio, which method proceeded from the English surgeons and was introduced into Germany, especially by Richter. "The chief object of the surgeon in bandaging is to further the healing of the wound by a speedy union. The more the bandage serves this purpose and the simpler it is the better." For this purpose the double circular incision was the preferred method, because by it enough skin was preserved to cover the entire stump and prevent as far as possible the protrusion of the bone. The skin being drawn down was fastened by adhesive plaster laid crosswise, lint laid on that, a linen bag, "English cap," drawn tight over the stump to properly press together the lint and the skin. On both sides a thick compress was laid, which, held firm by a band, pressed the muscles together so that they could cohere; thus the wound formed a somewhat long fissure. By this method, as B. Bell and Richter applied it, a healing by prima intentio was indeed possible, but Bell said it came to pass only rarely and rather in private practice than in hospitals, and that it was the fault of this method to force a healing by sutures and too closely applied plasters. Surgeons soon became generally aware that any pressure exerted by the bandage injured, hence Desault adjusted it as gently as possible. Wardenburg also decried adhesive plasters and compresses, which acted very disadvantageously, and he would only use plaster to hold together the edges of the skin. Pouteau indeed discarded all bandages and left the stump to nature. The suture seemed to have fallen entirely into oblivion although Paré had known it and fastened the skin crosswise. Perhaps he had seen it in Italy, for Maggi, who wrote during Paré's time, mentioned this method quite clearly and said he had learned it from the executioners of Venice, who when they cut off the head of a criminal, brought down the skin previously drawn back, and sewed it around. Sharp and Bagieu again took up the suture. Bandaging was gradually further simplified and the many salves and bandages thrown aside. Larrey covered the stump with pure water with an occasional addition of wine or vinegar, although he could not justify healing by prima intentio, for he regarded it as reliable only in cases of amputations on account of injuries to healthful parts, but very pernicious after amputations on account of chronic diseases. Von Kern left the stump open without bandaging and without suture, only cold applications by means of wet bath sponges or compresses were laid over the open surface of the wound during the first ten hours. Only if the wound was overlaid with plastic lymph he joined the edges of the stump with the greatest care by a few strips of adhesive plaster. If suppuration ensued, warm water was applied. Kern condemned the bandages, in use until then, because they kept the stump too warm and thus induced inflammation and suppuration, mechanically and chemically irritated the surface of the wound, and therefore for the most part prevented prima intentio, and the pressure of the adhesive plaster furthered the retraction of the soft parts. The effect of the atmosphere on the surface of the wound he regarded as not injurious, but on the contrary as useful. The results of Kern's experiments sounded very fortunate. In the second half of the century, according to B. Bell, the indications were as follows: 1. Complicated fractures, when the external conditions of the patient were bad, the fracture ran obliquely, the soft parts were much lacerated or in case of severe hemorrhage. 2. Large flesh wounds with laceration of the main artery. 3. A limb torn off by a cannon ball. 4. Mortification, when it became permanent. 5. White swelling in an advanced stage. 6. Sometimes in exostosis if it caused much pain. 7. Caries with extensive destruction of the soft parts, for without this one might remove the carious bone alone. 8. Cancer. 9. Various tumors which might destroy the soft parts and bone by continued pressure. 10. Stiff and crippled limbs when they cause the patient much suffering.

Until the beginning of the eighteenth century the single circular incision, according to Celsus, was in use; hence, for more than fifteen hundred years it was the only method. The simple flap incision, which Lowdham of Oxford devised for the leg, and imparted in a letter to Young, who published the method (1679) and which was then described by Verduin of Amsterdam (1696), had only just appeared. It was seen that the danger in amputation was very much reduced if the wound was made as small as possible, so that it healed quickly by prima intentio, and suppuration would be entirely or mostly avoided if the protrusion of the bone could be prevented and a thick cushion of flesh retained. With this object various methods were suggested: the circular incision made at two different times by Cheselden and J. L. Petit, the double-flap incision by Ravaton and Vermale, funnel incision by Alanson.

J. L. Petit especially deserves the credit of the *double circular incision.* Proceeding from the principle that only the skin was adapted to a quick junction and the preservation of the muscles affords no essential advantages for the covering of the stump of the bone, he cut through the skin at a deeper point, then when it had been pushed back, cut through the muscles at its edge and drew these up with a slit band. To pare off the periosteum before sawing he did not consider necessary. Louis allowed the protrusion of the bone to depend upon the contraction of the muscles, and therefore enveloped the limb from above downward. This circular bandage came very much into use, but was rejected by some surgeons because it hindered the return flow of the blood, and if it was to be used with success had to be too tightly applied (Richter). The cutting through of the muscles was done in various ways; now with one stroke (Louis), again in layers (Desault); either with extreme relaxation of the limb (Portal) or in extreme extension (Valentin). In both ways it was sought to avoid a protrusion of the bone. The covering of the stump by a simple flap of skin was recommended, especially by J. L. Petit, Kirkland and Brünninghausen.

Verduin's *simple flap incision* from within outward found many opponents (Heister, Z. Platner, la Faye and Sharp); on the other hand, the *double flap incision* found many advocates. Ravaton began four inches under the point where the bone was to be sawed through with a circular incision through the soft parts, and by incisions from without inward formed two four-cornered flaps. Vermale discountenanced the circular incision and formed the lobes by two incisions from within outward. The double flap incision was in the beginning very favorably received in France, but was later pushed into the background by the double circular incision which the English surgeons, and especially Larrey, recommended. Desault, Pott and C. C. von Siebold secured with it very successful results; Richter, also, for the upper thigh, preferred a double flap to all other methods.

Alanson of Liverpool (Pract. obs. on amputation, 1779) invented the *funnel incision*. After a circular incision through the skin the knife was passed upward and inward and in this direction around the limb so that the wound received the form of a funnel and its point fell where the bone was to be sawed off. This was an unlucky proposition which found almost no endorsement. Loder was one of the few to praise certain features of this method, while the French surgeons as well as B. Bell and Richter rejected it entirely. The last named called it a fancy of the study (stubeneinfall) as it was not at all possible to make the above described incision.

We must yet notice the *bloodless amputation*, a discovery of Guy de Chauliac, who enveloped the whole limb with pitch plaster and so laced it at the joint that it finally fell off. The Austrian surgeon, Wrabetz, gave a new procedure for this operation (1782). How atrocious it was is shown by the following description: "I had the skin around the healthy part drawn back, bound a cord around the sound portion four fingers' breadth above the elbow, which cord had lain twelve hours in a mixture of spirits of turpentine, tobacco leaves, rue, Spanish fly and camphor, and twisted it with a short stick, applied upon it the mixture in which it had lain, spreading it over the cord upon the arm, along the artery, but applying and fastening a rather long pad in order to obstruct the inflow of the blood. The cord I had twisted more from time to time and in the furrow which it made in the flesh I had a powder of cinchona, myrrh, camphor and alum strewn. The fourth day all the soft parts were separated down to the bone without the least flow of blood, whereupon I sawed off the bone. The stump was healed in five weeks." Wrabetz in this way bound off fingers, toes, hands and feet with success, and Ploucquet of Tübingen recommended it in case of thin and timid people.

The low amputation of the lower leg claimed an especial interest. They were accustomed always to cut it off three fingers below the knee, even if the ailment was limited to the foot, because they considered a long stump inconvenient and did not believe an artificial leg could be applied. Paré had entirely discarded the low amputation and relates the story of a captain who, after he had recovered from it again had his leg amputated in the calf because the stump was too burdensome to him. Even at the end of the seventeenth century Solingen and Dionis advised this amputation and Garengeot asserted that the long stump was no hindrance at all. The practice was, however, entirely forgotten. The first who again showed the practical possibility of this method appears to have been Ravaton (*Journ. de Nandermone*, vi, p. 130, 1756), without, however, having discovered it as he believed. He made several amputations of this kind and argued as its advantages the slight danger, the smallness and quick healing of the wound and the small number of the large blood vessels and nerves, and asserted that with two flaps the operation was very easy. With his artificial leg devised for this purpose the patient could walk conveniently; indeed, one upon whom he had operated made three campaigns afterward. After him Trecourt ("Mém. de Chir.," 1769, p. 256) and especially Charles White ("Cases in Surgery," 1770) came for this operation, with which the latter had several successful results to show. He advised as low an amputation as possible always by means of the lobed incision, but would fasten the lobes upon the stump with court plaster when after some fourteen days the suppuration was in progress and the bones had covered themselves with granulations. He also constructed for the purpose a boot-like apparatus. Since that the low amputation has become established in surgery. On the other hand, if it were a question of amputation just under the knee, some would not amputate at this point but above the knee, because shattering of the bone and caries might possibly extend into the joint, and besides the artificial leg would have a better hold on the thigh (B. Bell and Richter).

Artificial limbs had already been devised by Paré, Fabr. v. Hilden and Solingen. Heister spoke of wooden and silver limbs, which "had been very curiously devised by various mechanics." Besides the above mentioned, one known in Germany as the best was that of Brünninghausen for the high amputation of the thigh. This consisted of a calf made of copper, a heel, middle foot and toe-piece, which were fashioned out of light but firm wood by a sculptor, exactly after the sound foot.

There prevailed a great horror of *exarticulation*. Performed by Fabr. von Hilden, Paré and other older surgeons, and not entirely rejected by Heister and J. L. Petit, in the middle of the century, they had fallen very much out of use. Brasdor, le Blanc, Sabatier, Larrey and others sought to allay the loudly expressed terror and argued that the dangers would be entirely avoided if one cut entirely through the sinewy parts, and that the bone exfoliated slightly and soon became covered with granulation. They considered exarticulation as easily practicable and warmly recommended it.

The second birth of these operations began with the exarticulation of the *upper arm*. This was first done by Morand, senior (1710), then by le Dran and improved by la Faye (1740). In caries and inflammation Heister would never have the large limbs taken out at the joints, but still he exhaustively described le Dran's operation. Later Bromfield and Desault performed this exarticulation with success, and Larrey introduced it into military surgery. Almost every one of these surgeons had his own methods. The circular incision was soon superseded by the lobed incision; Morand, Garengeot, Sharp and Alanson operated with the former. In order to the more easily control the hemorrhage, la Faye devised the flap incision, which either with forward and backward, or with outer and inner flaps was adopted by Bromfield, Desault, B. Bell and Larrey, and is still practiced. Later Larrey devised the oval method. It was the hemorrhage chiefly which gave rise to the many modifications in the methods. Morand punctured the axillaris subcutaneously with a curved needle and bound the provisionary ligature over a compress in the axillary cavity; he then exarticulated it, bound the artery definitely and released the provisionary ligature. Le Dran recommended that the artery, before the operation, be punctured in the axillary cavity; la Faye advised the continuous binding of the axillaris before the formation of the two flaps. The essential improvement, which controlled the hemorrhages, was the method of Poyet (1759) who, before the cutting of the second flap, which contained the artery, had an assistant reach into the wound and compress the flap. This manual compression, already in use by Desault, has continued to the present day. Bromfield also deserves the credit for compressing the subclavia against the first rib with the finger instead of with the tourniquet, a method which soon found general acceptance and superseded the legion of inconvenient tourniquets constructed especially for that purpose. The technique was extraordinarily varied; some would bind the blood vessels as high up as possible, others as low as possible, so that the flaps would be sufficiently nourished through the side branches; one pared the cartilage of the socket off, another did not because the soft parts united with the cartilage as readily as with the bones. The indications for exarticulatio humeri were caries and shattering of the bone, in consequence of a shot (Alanson with success, 1779). Soon, however, the operation experienced a limitation, since, when the soft parts were affected slightly or not at all, the resection of the head of the humerus was substituted. The exarticulation of the *elbow joint* first made by Paré (1536) and afterward by a Brandenburg surgeon, Chr. Rumphtun (1671) was somewhat outside the usual course. Now it was recommended again (Brasdor and Richter); but it was stated against it that the stump had not a sufficient cushion of flesh, and in the aponeurotic parts a good suppuration never arose (Schmucker). Exarticulation of the hand joint, which it appears was first accomplished by Fabr. v. Hilden, and indeed with the circular incision, was very rare. Heister never made it nor saw it made, and Z. Platner does not mention it at all. Later, in France, it found acceptance, where Sabatier and others performed it with success. On the other hand, *fingers* and *toes* were exarticulated with the greatest partiality, and it was advised that the cartilage be cut through in order to shorten the time of the cure.

The bold idea of exarticulation of the shoulder joint was scarcely sketched out and a few successful cures heard of when courageous surgeons found the exarticulation of the *hip joint* suggested, an operation which demanded the greatest care. The Danish military surgeon Wohler and the Swiss Puthod, both pupils of Morand, had first expressed the idea of this operation, had tried it with their teacher on a cadaver, and in 1739 submitted their proposition to the Académie de chirurgie. Le Dran and Guérin rendered a favorable judgment. Later Lalouette wrote on the subject; he did not consider the operation absolutely dangerous, as the art. iliaca could be compressed, and in his experiments on cadavers, scarcely twelve ounces of the water injected into the aorta flowed out of the severed artery of the thigh. Then Ravaton wished to carry out the exarticulation upon a living person, but was restrained by the consulting surgeons. When the Academy upon the suggestion of Morand, in 1754 called for prize essays on the indications and best technique, among forty-four works submitted, there were thirty which held the operation to be possible. The marine physician, Barbet, received the prize, expressing himself in favor of the operation in case of shattered bones and caries of the neck and head of the femur, and in aneurysm and gangrene. This impelled Morand to make known the work of his two pupils (1768) and to recommend the operation in case of shattering and caries, where it must be regarded as the only way of saving from death. He sought to meet the charge of cruelty and of enormously large wounds and hemorrhages, and argued that the operation had been performed successfully upon three dogs and two sheep. Among the surgeons who championed the operation was, strangely enough, the conservative Bilguer. But he, as well as his translator Tissot, preferred exarticulation to the amputation of the upper thigh. The former indeed recognized the great difficulties, but would in that way avoid the inconveniences of a stump; the latter. from his student's chamber had arrived at the conclusion that the hemorrhage could be more readily stilled in articulation. Pott combatted these views in so far that, although he admitted the possibility of the operation, which he himself had never performed but had seen performed, he however expressed the safe conviction that he would never perform it, because in most cases of caries of the head of the femur the cavity of the joint was also carious. When Schmucker had become acquainted with the difficulties of the operation on cadavers and in cases of fracture, he thought that hardly anybody would be bold enough to carry out the operation, called it the most cruel in all surgery, one which nobody would recover from, and one compared with which Cæsarean section itself was but a trifle.

B. Bell and Richter could not coincide with these entirely dogmatic views. Indeed they did not ignore the dangers, but believed that by the formation of two flaps as the former suggested, they could be overcome, in which way the arteries would be severed deep down, where their diameter was less and a healing by prima intentio could be attempted. For Bell a chief difficulty consisted in the uncertain diagnosis, as one could not know whether the caries extended also to the cavity and pelvic bones, so that the operation might probably result fatally. Besides, if the soft parts were affected slightly or not at all it might be avoided by the resection of the head of the femur, while in case of the destruction of the soft parts the exhaustion of the patient might make success very doubtful. To Richter the exarticulation was very seldom unavoidably necessary. Later Sabatier argued that it caused less pain and occasioned a smaller wound surface than amputation. It is not exactly known who first carried out the exarticulation on a living person, whether Henry Thompson or Perrault, in 1770. The French gave Lacroix the honor; but his operation (1748) performed on a 14 year old girl for gangrene consisted only in a few shears-cuts to sever the extremity; the patient died on the eleventh day. In 1779 Kerr of Northampton operated upon a girl, who died on the eighteenth day in consequence of pelvic suppuration. Larrey first made the exarticulation in the field, and indeed made it eight times with success, during his twenty-five campaigns.

The exarticulation of the *knee joint* was mentioned by Fabr. von Hilden as a common operation, was discarded by Dionis and performed by J. L. Petit twice with success, and without the occurrence of ill consequences. Brasdor (1774) sought to introduce it again. He considered amputation of the upper thigh in the larger wounds as more dangerous, and did not fear caries of the naked joint surface because the cartilage soon became covered with granulations; he lauded the easy accomplishment and the slight pain of the exarticulation. He recommended the formation of a posterior flap and the sparing of the patella. While Richter recognized the arguments of Brasdor, Schmucker ruled against the exarticulation for the same reasons as in the case of the elbow joint. It did not meet with acceptance at that time. The exarticulation of the *astragalus*, which Sédillier had accomplished without ill consequences, and with quick healing of the wound (1774), also found no approval although Brasdor and Sabatier submitted special methods for it. Amputation above the tarsal bones was preferred. The exarticulation of the *tarsal joint*, the possibility of which von Abbeville demonstrated (1746), was also mentioned by Heister; "the surgeons of today are accustomed in case of a diseased foot to amputate it at the joint with a knife, to separate the toes from the metatarsus, or the metatarsus from the tarsus, or ossa tarsi from each other, so that one could go about again, somewhat, upon the foot as upon a crutch." Its first accomplishment became known through Hunczovsky, who in 1780 when with du Vivier in Rochefort, saw an 8 year old boy whose foot had been severed at the joint for caries, the talus and calcaneum being left. Two months later the patient began to walk comfortably. The operation was forgotten until Chopart took it up anew. He performed it in 1791 and described the practice which has since borne his name. He was followed by Lafiteau and M. A. Petit, the latter of whom observed a retraction of the heel which rendered walking entirely impossible so that he decided upon severing the tendon of Achilles (1799). The exarticulation of all the *bones of the metatarsus*, pointed out by Garengeot and Heister, was first performed by Percy (1789) and was later introduced into practice by Lisfranc (1815).

To the ingenious ideas which were conceived in the foregoing century belongs *joint resection*. Like most great discoveries, this also had its precursors which consisted in the removal of the ends of dislocated joints and in the extraction of necrotic or splintered pieces of bone. It is not without interest to observe how within the space of a few years the beginnings of a conservative surgery converged from two different sides. To save limbs and avoid mutilating operations was the aim, but the ways differed. In the year 1761 Bilguer came forward with his conservative treatment. *In 1768 Charles White of Manchester, gave the first impetus to joint resection with his now celebrated operation.* With it he desired to avoid amputation and exarticulation in many cases, if not to entirely supersede them, as was Bilguer's wish. A 14 year old boy contracted an acute osteomyelitis of the arm, in consequence of which the head of the humerus became necrotic. Ichorous pus, diarrhea and fever had enfeebled the patient to the last degree. Instead of exarticulating the arm, which must have been regarded at that time as the only means of saving the patient, White opened the joint with a single large, longitudinal incision, extending to the middle of the arm, and removed the loosened necrotic head of the upper arm. Improvement began immediately and six weeks later an unexpected firmness was found in the joint. Soon thereafter a piece of the diaphysis separated itself so that from the upper end of the humerus a piece five inches long was lost. The arm was lightly bound without splints or other bandages; indeed, the patient sat in a chair during almost the whole treatment. Perfect recovery ensued and the replacement of the bone was so complete that the arm was only an inch shorter than the sound one and moved freely and could be not only lifted but also rotated. White said, "I think I may safely say, the head, neck, and part of the body of the os humeri are actually regenerated" ("Cases in surgery," 1770; "Philosoph. Transact.," vol. 59 for the year 1769, London, 1770).

The advantages of this operation, through which the exarticulation of the upper arm could frequently be avoided, were too brilliant for his contemporaries to be able to overlook them. In Germany they soon became aware of the great value of this operation. When Richter became acquainted with White's work, shortly after its achievement, he recommended that resection be made as soon as the soft parts had suffered slightly. And the first one who repeated the resection, and indeed on the upper arm, was a German, Lentin. He performed it in 1771 in case of a 14 year old girl for caries, removed at one time almost the whole diaphysis of the humerus, and as a result of bone regeneration restored the use of the arm with limited mobility. Soon E. Platner recommended this operation in case of caries. Foreign countries followed. The Englishmen, Bent and Orred in the seventies performed the resection of the head of the upper arm; the former used the longitudinal incision with two other transverse incisions; the latter, in order to spare the artery, placed a piece of pasteboard under the bone before he sawed it off. The piece which had been removed was replaced by callus and after three months the arm could be moved in all directions without hindrance. In France Sabatier and the elder Moreau especially took an interest in this resection; the latter formed the four-cornered lobe. Percy and Larrey enriched military surgery with it. The latter as early as 1795 was enabled to report to his colleague, Sabatier, nine soldiers for whom the resection of the shoulder joint had been performed by him; Larrey made this operation ten times in Egypt.

If joint resection did not become established as soon as had been expected, this was due to several obstacles: 1. The experiments in France on animals, which were conducted by Chaussier and Vermandois, did not succeed because they spared neither periosteum nor joint capsule. 2. Many surgeons regarded joint resection as equivalent to *resection of the bones where continuous*. This was frequently brought into use in complicated and gunshot fractures, caries, necrosis and pseudo-arthrosis. We have already mentioned that the military surgeons, Bilguer and Theden, also Percy and Larrey in gunshot fractures, frequently laid bare the broken place by large incisions and resected the sharp ends successfully. Large pieces of bone were fearlessly removed. A. F. Vogel sawed one and one-half inches from both ends of the broken bone, whereupon the arm, without shortening, grew so as to be used; le Cat sawed off three inches; indeed Siegwart of Tübingen removed an entire carious tibia (1770), which became completely regenerated. While W. Hey could also show successes relative to this bone, Moreau, senior, did not succeed in the resection of long carious bones on account of failure of regeneration. Partial resection of the ribs, known even in antiquity, was not infrequent in case of caries (Gooch, Acrel and Percy).

If we turn back to joint resection we find that the next advancement, after White, was made by H. Park, Liverpool. He was acquainted with the operations of his countrymen and made the hitherto unheard of proposition to entirely eradicate the joint, i. e., the whole of the abutting bone ends, and to remove the whole joint capsule or the greater part of it. In this way in tumor albus, suppuration of joints and complicated shot fractures amputation could be avoided and the loss of the extremity prevented. Park's work in the shape of a letter to Percival Pott, dated Sept. 18, 1782, an account of a new method of treating diseases of the joints of the knee and elbow (1783), is surpassingly well written, and is simple and practical. All the objections which could be urged against this method Park believed he was able to overcome, since they were only apparent. The large blood vessels could be avoided readily in the arm as well as in the knee; a violent inflammation was less to be feared in large wounds where all the parts were completely cut through. That a sufficiently firm callus would develop was, after experience in complicated fractures, not to be doubted; on the other hand, the loss of the extensor muscles was of no importance as the limb became ankylosed. Walking with a stiff shortened leg was safe enough and amputation afforded no better chance of removing all disease and preventing relapse. The investigations of Park were limited to the knee and elbow joints. In his experiment on cadavers he made only a longitudinal incision in the knee joint, which White had already established as a principle in case of a shoulder joint and found it sufficient, but had in general difficulty in making it serve. In his first resection of the *knee joint* made on a sailor thirty years old, for caries (July 2, 1781), Park began with a single longitudinal incision, but after several fruitless experiments found a transverse incision necessary, which he made from the middle over the patella. After carefully removing the knee capsule a spatula was applied behind the bone to protect the large blood vessels from the saw. The piece resected from the femur was two inches long; that from the tibia, one inch long. In order to hold the bones close together they laid the limb in metallic splints, stitched the skin together and bandaged it but slightly. A violent, bad smelling suppuration ensued for which a pulp of turnip was applied and cinchona given internally; the fever remained moderate. After four weeks a partially osseous union existed. In its later course several abscesses must be opened. After nine months the bones were firmly united and the wounds healed. The patient walked without crutches with one limb three inches shorter than the other, wore a shoe with a high heel and later went to sea again. Park was well aware that the cure always took a long time and that the operation would not always succeed. (His second knee-joint resection in 1789 proved fatal after four months); therefore he hesitated about suggesting it in the large hospitals of London where complicated fractures were so seldom cured. But amputation also frequently resulted fatally; however, resection which has better chances in injuries than in diseases from internal causes should never supersede amputation, for the latter always deserves the preference where the soft parts have suffered severely or the bone disease has extended far upward.

Park's operation, through which the resection of the knee joint with the presentation of certain indications and a systematic technique, was introduced in surgery (for Filkin of Norwich, who had performed this resection with success in 1762, first published it later), found favorable acceptance. B. Bell endorsed it, although experience must first teach whether the method deserved a general application. It would always remain difficult to prevent the accumulation of pus, the generation of fistulæ, and to fix the limb properly. For this purpose Richter would maintain the limb in a straight position as well as extended and placed no importance upon the shortening. In spite of everything the Frenchman, Lancelot-Haine, pronounced a thoroughly depreciative judgment upon Park's resection, regarded it as very difficult and horrible and said that after much pain, trouble and danger a newly acquired stiff bone was less useful than an artificial one (1787). The resection of the knee joint was first repeated by Moreau, senior, in case of caries (1792). To partial resection might belong the extirpation of the patella, which Theden made in case of a shot fracture, but the patient died of gangrene.

Gradually resection was applied to other joints and anchylosis was regarded as the most favorable result. The greatest credit for its wider development is due to Moreau, senior. who operated upon various joints, in the 80's and 90's, and communicated his experiences to the Académie de Chirurgie (1789). Unfortunately, this body, ruled by prejudice and influenced by Chaussier's unfavorable experiments, showed no interest in one of the most valuable achievements of surgery. Moreau did not allow himself to be terrified; he perfected the technique and operated in his private practice, while the great Parisian hospital surgeons remained indifferent. Moreau, the son, followed in the footsteps of his father and in the Académie de Médecine had the same melancholy experiences. Nevertheless the outcast child of Sabatier, Percy, Larrey and Ph. Roux was sheltered and nursed. In the year 1812 Percy wrote that the number of joint resections accomplished by him, Larrey and other French military surgeons was already so great that one could not count the cases. Above all others the English surgeons should have been interested in the discovery of their countryman; they remained indifferent So the flowering time of joint resections only began in our century.

Extraction of splinters from the *elbow joint* in gunshot fractures, and a partial resection, which consisted in sawing off the humerus condyles in a complicated luxation (Wainmann, 1758), had taken place, when Park proposed the total joint resection. Here he considered a longitudinal incision as not sufficient and a crucial incision necessary. If he himself did not carry out the operation yet he recommended it, as his much more difficult resection of the knee joint had succeeded. After Göroke in a shot wound had successfully made a partial resection by removing the head of the ulna (1793) and Bilguer had resected the olecranon, Moreau, senior, first performed the total resection in a case of caries in 1794. He made an H-shaped incision, took one inch off each of the three bones and after seven months obtained a cure. He repeated the operation several times and found a follower in Percy, who first accomplished the total resection in a gunshot fracture. The honor of first making an experiment in resection of the wrist, belongs to the Prussian staff physician Beyer. As Bilguer relates, Beyer in 1762, at the battle of Freiburg, removed both under epiphyses of the forearm bones and the ends of the ossa carpi and metacarpi from a wounded soldier's hand, shattered by a howitzer. The hand indeed did not again become so as to be used, and the operation was not a methodic resection; but if it were correctly performed, it deserved to be imitated, as an immobile hand is always better than the stump of an amputated forearm.

The resection of the *hip joint* was proposed by Charles White in 1769 and practiced on cadavers; yet a half century passed before it was carried out on living persons. Vermandois and Koeler of Göttingen, undertook experiments on animals and endeavored to determine the possibility of the operation and its results. Observation at the bedside also contributed to that end. It was seen that in the last stage of coxitis, in case of long standing caries of the head of the femur, this might become loosened naturally, and after its artificial removal a cure might result. Schlichting (1730) after the outbreak of pus and the previous enlargement of the fistula, had removed the whole head; the wound healed after six weeks and the girl could walk again. A. F. Vogel also (1771) in a suppuration of the hip joint removed the bad-smelling pus and found the head of the femur sundered from the neck. The diaphysis with the neck lay upon the oval cavity, where it was allowed to remain and cicatrize. After three months, recovery ensued; the patient could walk about, limping, but without a cane. Fear of the difficulty of the operation may for a long time have prevented its perfect fulfilment; for only in the year 1817 a German physician, Schmalz of Pirna, first applied the knife to the resection. He would indeed have carried it out but found that nature had already sundered the carious neck of the femur so that he needed only to grasp it and draw it out with the hand. In truth, Anthony White of London was the first who carried out the operation, in 1821; he resected four inches of carious femur and accomplished a cure with great mobility and slight shortening of the limb. Oppenheim performed it in 1829 in the Russo-Turkish war; first in a gunshot injury. If we except the removal of luxated or fractured parts of the ankle, which had in all times been performed (by W. Hey, and Kirkland, on both lower leg bones, by Gooch on the tibia, etc.), then the history of the total resection of the *ankle* began in 1792 when it was successfully accomplished by Rumsey in a complicated luxation with fracture of the astragalus, and by Moreau, senior, in case of caries. The resection of one or more tarsal bones did no longer belong among rarities (Moreau, Desault, Hey, Bilguer and others).

Finally resections of the jaw.—Partial removal of a part of the *upper jaw* was accomplished on account of carcinoma (Gensoul); sarcoma and exostosis (Desault). Among those of the *lower jaw* was the exarticulation of one-half of the bone, in the last century, which operation the Austrian military surgeon Fischer first performed in 1793 in a shot wound. A large incision through the masseter and the parotid exposed the proc. condyloideus and coronoideus; the joint cavity was opened and the entire left half of the lower jaw removed, whereupon healing followed. In closing, a remembrance to a German surgeon and namesake!

THE END.

[ERRATA.—In the JOURNAL for March 13, 1897, page 494, second column, nineteenth line from the bottom, the word "peritoneum" should read "perineum;" also, in the JOURNAL for July 31, 1897, page 234, first column, fifteenth line from top, the word "anterior" should read "posterior."]

SOCIETY PROCEEDINGS.

Chicago Academy of Medicine.

A regular meeting was held Nov. 12, 1897, with Dr. A. E. BALDWIN in the Chair.

Dr. R. B. PREBLE read a paper entitled

GASTRECTASIS, WITH A TETANOID CONDITION AND THE SO-CALLED PULMONARY HYPERTROPHIC OSTEO-ARTHRITIS OF MARIE.

The case upon which the paper is based is that of a Pole, a male of 32 years, free from all hereditary taints, bad habits and venereal infection. For past six months has complained of eructations, nausea, vomiting, attacks of diarrhea, anorexia, loss of strength and emaciation.

Physical examination of chest negative. Abdomen full and distended, especially in the epigastric region. Marked succussion over stomach. Distention of stomach with gas shows it to extend from normal borders above to hand breadth below umbilicus and far to the right. Urine negative. Temperature of 101 once. The distal phalanges of the hands very much thickened; typical clubbed fingers. A week later returned with tonic spasm of the masseters, the flexors of forearm, wrist and fingers. Arms held against chest, elbows at right angles, thumbs adducted, the fingers flexed in all joints, *i.e.*, an almost but not quite typical spasm of tetany. Reflexes exaggerated, sensation normal, Chvostek and Trousseau signs absent. Has had such spasms at intervals for some time.

The clinical diagnosis made was gastrectasis, with the so-called pulmonary hypertrophic osteo-arthritis of Marie and with a tetanoid condition. The association of gastrectasis with true tetany is rare, with incomplete tetany or tetanoid condition more common. The common theories of the etiology of tetany were reviewed, especial attention being given to that of auto-intoxication. The efforts of various experimenters to discover the causal toxins in the gastric contents and their failures so far were reviewed. Gumprect failed in a recent case to discover any pecular toxic bodies in the urine of such a case. The urine, however, showed twice the normal toxicity. The clubbing of the fingers, in the absence of any other demonstrable lesion, was referred to the gastrectasis. The popular explanation of this condition is, that it is due to the action of absorbed toxins upon the bones. The source of these poisons is oftenest a bronchiectasis or empyema, but they may be absorbed from other places as cysto-pyelonephritis, the intestines in dysentery. This case is the first example where the source of the toxins seemed to be the stagnating contents of a gastrectasis. An X-ray photograph showed that the bulk of the thickening was in the soft parts rather than in the bones. The bones, however, showed some excrescences and were also more transparent than normal, probably the result of a rarefying ostitis, such as is often seen in this condition.

The case is of interest because it shows in one individual two conditions of uncertain etiology, both of which are generally believed to be due to an auto-intoxication of the organism with toxins. Secondly, it would seem to be a connecting link between rachitis, a nutritional disturbance in which the bones are affected and which is often accompanied by tetany and the tetany of adults, which until now has not been seen in association with osteal changes, apparently due to the condition which caused the tetany.

DISCUSSION.

DR. FENTON B. TURCK—There are some objections to the word tetany as used in these cases. It is to be borne in mind that some of these patients have exhibited signs of tetany and have at other times manifested almost the epileptic form of convulsions. I wish to present tonight the reason, so far as my observation goes, of what I believe to be the cause of this disease, and also to report two or three interesting cases in my own experience. In all cases of true gastrectasis we will find a marked atony of the stomach with hypertrophy of the pyloric orifice. In other words, we have obstruction of the pylorus *plus* atony of the stomach wall. In other cases we have primary hypertrophy of the pylorus when compensation occurs, the wall becomes thicker and stronger, but subsequently results in true dilatation. The pathology of true dilatation is markedly different in many of these cases. The round cell infiltration that occurs produces the true dilatation. The round cell infiltration, resulting in atrophy, usually begins in the glandular area and extends into the muscular tissue, this condition necessarily causing retention and stagnation. The micro-organisms already present there have abundant opportunity to develop, resulting in putrefactive decomposition and fermentation. These toxic products, whether we have tetany or not, found in a patient's stomach, will produce tetanic convulsions when injected into animals. Evidence derived from frequent experiments I have made, leads me to conclude that in many of these conditions we can prove a toxic condition of the stomach contents. I have made a series of experiments on the stomachs of soldiers in the regular army, in the normal condition, and have compared them with various cases of dilatation and retention, which show decided hypertoxicity of the stomach contents. In these cases there is another condition to which I would call attention, namely, starvation. It will be remembered that Van Gieson referred to this starvation as being a form of intoxication, and that we have coupled with this a lowered vitality and resistance to the action of the poisons, which is the second condition that must be considered. A third condition which I wish to call attention to in this class of patients which I have observed is that there is usually a "neurotic tendency." The patients themselves have not the inhibitory power that we find in other patients manifesting similar conditions of gastric dilatation. I mention these three factors to be considered as relating to tetany.

A word or two as to diagnosis. The method that has been heretofore practiced is simply that of outlining the organ by the use of gas or air introduced into the stomach. This is faulty from the fact that the gas or air will frequently pass into the intestines, and percussion will show the stomach as if located further down or to the right than would be shown by direct methods. The use of the electric light (Einhorn's method) is valuable in the hands of an expert, but it is impracticable for general practice. We know that the use of the gyromele (revolving sound) affords us exact evidence of the size and location of the stomach in every case.

I wish now to report a case that was referred to me by Dr. C. S. Bacon in 1893, in which I found hypertrophy and stenosis of the pylorus with marked dilatation of the stomach and stagnation. On examining the stomach contents I secured 800 c.c. of fluid. A peculiarity of these cases, which is often noted, is that upon the introduction of a stomach tube a convulsion sometimes follows. In this case there was no convulsion after passing the tube until the patient had returned home, when I found him in a condition simulating opisthotonus. I found contraction of the jaws, the arms flexed upon the breast, and in this rigid condition the patient seemed to breathe heavily, the pulse was rapid and the temperature 101.5 degrees. Subsequently he had two or three lighter attacks, but following the tetany the attacks became more epileptiform in character. The patient was treated for a while and compensation occurred, *i. e.*, the stomach wall became thicker and stronger and the food passed out of the stomach into the intestines normally and in time, and the symptoms disappeared. But some time after the symptoms reappeared and it was decided to do a pyloroplastic operation. The Heineke-Mikulicz operation was performed and from that time the symptoms entirely disappeared.

The second case was one which resembled the first in some of its manifestations and was sent to me by Drs. Ferguson and Sanger Brown. Mrs. S. had had more or less epileptic attacks, but there was a peculiar form of tetany in this case which occurred in the abdominal muscles. A clonic spasm would make its appearance and then was followed by a tetanic spasm until contractions occurred so markedly as to extend to the arms and involve the jaws. The peculiarity in this case was that the symptoms began in the abdominal muscles.

A third case was sent to me by Dr. Cuthbertson and was that of a woman who had hyperemesis of pregnancy and the patient had had a previous history of two or three attacks during which she could not open her jaws. In her case there were mild periodic attacks of tetany. She was treated and we found such a large mass of sarcinæ that the other physicians thought it was pus. I withdrew something like two liters in two days. The patient, after being observed a week, had an attack of tetany which commenced with difficulty in swallowing, at 3 o'clock in the afternoon; at 5 o'clock the jaws were closed, at 6 arms were involved, and then the legs, and at 9 she died from tetany. In the meantime I brought with me tetanus antitoxin, thinking it would have some effect on the tetany, but it produced no effect.

There is one point I wish to mention, and that is, in most cases associated with gastric tetany there is either a total obstruction or the pylorus is so narrow that material can not be forced into the intestines. In all cases of this character we should advise operative interference at once and perform the Heineke Mikulicz pyloroplastic operation.

Dr. JAMES C. KIERNAN—In dealing with these conditions the two hypotheses can very well be combined that have been advanced by Dr. Preble and Dr. Turck. There are few cases, especially among the conditions hinted at by Dr. Preble, in which neurasthenia with its consequence and its gastric expression is unlikely to occur. Dr. Turck has hinted at a large number of cases being neurotic. The last case which he reported was, I think, one of puerperal tetanus and not tetany, as I understand the term. The condition of tetany is by no means rare, as Dr. Preble has remarked, in children, not merely with reference to rickets, but with regard to an expression of both nerve tire and irregular nutrition which is recognized now to a considerable extent as one of the underlying factors of scurvy. The conditions which today are placed under scurvy of the infant and charged to diet were some years back charged to innutrition, many of them being placed under the condition known as piliosis rheumatica nodosum, whose dermic lesions resembled the ecchymoses. In many of the cases the true condition known as tetany, or, as I have been accustomed to term it, tetanilla, is to be found. Neurasthenia, either attacking the sound organism or one which is already neurotic, is by no means rare in Europeans. It was quite common with its gastric phenomena in the male and female shoemakers in Lynn, Mass. Nearly forty years back there was a condition so closely resembling it there that it was first described as epidemic, and then as endemic. This so closely resembled tetanilla that it could be placed under the same category. It was then charged that a good many of the conditions were due to dyspepsia, and dyspepsia in those days meant a large number of neurotic states charged up to these gastric conditions. In dealing with these and allied conditions of the intestines the fact is often ignored that they are not primary, but secondary to a constitutional condition. Glénard, when he dealt with enteroptosis, did not take into account the fact that very frequently nerve tire and allied conditions preceded the neurasthenia to which he charged them. This would seem to serve as a predisposing factor. With regard to the direct etiologic factor I can see good reasons, from what is known of many of the morbid products (call them alkaloids, toxins, leukomains or allied products), why they should produce this condition. Certainly the occurrence of tetanilla in connection with infantile scurvy or rickets bears out Dr. Preble's position as an exciting factor of this kind.

Another thing which is purely hypothetic is whether interference or partial inhibition of the functions in gastrectasis may not produce the temporary, or, in some cases, permanent atrophic changes to which Dr. Preble has referred.

Dr. PREBLE (closing the discussion): It was not my intention to enter into the pathology of gastrectasis The case, simply as one of gastrectasis would have no interest, and only little interest as one of gastrectasis with tetany or a tetanoid condition, but because we find here a tetanoid condition with drum stick fingers, both apparently due to a gastrectasis, the case seemed to me to be worthy of record. I must accentuate again the criticism manifested in regard to Dr. Turck's use of the words tetanus and tetany. One condition is absolutely distinct from the other and they should not be confused. The last case mentioned by Dr. Turck would seem to be one of tetanus rather than tetany, and if so, it has no place in the consideration of this subject.

In regard to his first case there are one or two things which attract my attention. In the first place I have never seen opisthotonic convulsions with tetany, nor have I ever heard of them occurring with it. There is, however, a functional neurosis often accompanied by opisthotonic convulsions, namely, hysteria, and with hysteria we frequently have epileptoid convulsions. It might, however, be that she had tetany, and associated with it epileptoid convulsions. The line between the two can not be so nicely drawn as to say that she had tetany and later on an epileptoid condition. It is more interesting to note that in these cases the masseters are more frequently involved than in ordinary cases. Tetany as it occurs in normal individuals, especially in shoemakers, is rarely accompanied by spasm of the masseters. The external muscles of the eye may also be involved in the spasm, but not as often as the laryngeal muscles, particularly the laryngeal muscles in rachitic children.

Dr. Kiernan spoke of a condition which resembles tetany as being observed in the factories of Lynn. I am much interested to hear of these cases, for tetany seems to be rare in this country. I saw a number of cases abroad, so that its clinical picture is familiar to me, but I have not seen one here. This case is not typically tetany at all. The most we can say is that we have tetanoid conditions. So far as I have seen (and my opportunities for observation have not been ideal by any means) the case lacks two important signs, namely, spasm following pressure over the large vessels or nerves, and facial phenomena. These are absent entirely.

In regard to the use of the word tetanilla, I never heard it employed until Dr. Kiernan used it, and then I was interested enough to look it up. I found the word tetanilla was proposed by Trousseau many years ago, but in his lectures he makes no use of it. He makes use of the word tetany only. One has to hunt the dictionary or monographs upon tetany to find the word tetanilla at all.

AMPUTATIONS AT THE KNEE JOINT.

Dr. **Wm. Cuthbertson**—This is an operation of considerable antiquity, having been advised by Hoin in the last century and reintroduced by Brinton, Velpean, Markoe and others.

In discussing amputations at the knee, various causes requiring the operation must be taken into consideration before determining the operation to be performed. It is a foregone conclusion that in all crushing injuries, such as railroad accidents, limbs being caught in machinery, wounds of the femoral or popliteal arteries, the incision must be made according to the extent of the destruction of tissue or the location of the arterial wound. Again the amount of shock resulting from the injury must be considered as a determining factor, it being a well known fact that the higher the point of amputation the greater the shock and consequent mortality. The third determining factor is the ability of the patient to procure a prosthetic appliance to replace the loss of the amputated limb.

It should be imperative that the line of suture in all cases of amputation at the knee joint should be behind and not across the end of the stump.

MORTALITY OF KNEE AMPUTATIONS.

An analysis of a mortality table compiled by John Ashhurst, Jr., M.D., in the International Encyclopedia of Surgery, Vol. 1, 1888, gives a death rate of 50 per cent. A later compilation by the same author in 1895 of seventeen cases with eight recoveries and nine deaths gives a mortality of 52.9 per cent., or a total mortality in both series of 52.4 per cent. These cases comprise operations for all causes.

A further analysis of these statistics shows that of seven amputations by the antero posterior flap method through the knee joint, four died and three recovered, a mortality of 57 1-7 per cent. Amputation by the same flap method through the condyles of the femur, nine operations were performed with five deaths and four recoveries, a mortality of 55 5-9 per cent.

From statistics of the Civil War 132 cases are reported with 64 deaths; mortality 48.4 per cent. Of these, 49 were primary with 16 deaths, a mortality of 32.6 per cent. Brinton gives 62 cases for disease with 14 deaths, a mortality of 22.6 per cent. Max Schede gives in civil practice for injury 314 cases with 103 deaths, a mortality of 32.8 per cent. For disease 124 cases with 30 deaths; mortality 24.4 per cent.

Rioblanc (year book 1897, page 229) gives the records of 85 cases of Gritti's operation with a mortality of 19 per cent.

He states not one of the deaths was due to the operation but to other causes. A further report of this operation gives 25 cases for injury with 4 deaths, a mortality of 16 per cent.; for disease 196 cases with 5 deaths, mortality 26.3 per cent.

Amputations through the condyles of the femur: For injury 111 cases with 40 deaths; mortality 36.1 per cent; for disease 60 cases with 15 deaths; mortality 25 per cent.

Totals: Simple disarticulation, 648 cases with 220 deaths; mortality 3.3 per cent. Gritti's operation, 306 with 13 deaths; 4.2 per cent.

Amputation through condyles of femur, 171 cases with 55 deaths; mortality 3.2 per cent. Grand total, 1,125 cases with 228 deaths; mortality 2.50 per cent.

The age of the patient has a distinct bearing on the mortality of the operation; other things being equal, children stand amputation better than adults, the reason being, in my opinion, in addition to a better constitution, as a rule, the shock is lessened by the child not being aware of the enormous loss it sustains through the amputation of the limb. The operations which would seem to meet with the most favor are the following:

1. The antero-posterior flap method, formed by cutting an anterior flap, beginning the incision near the back of the tuberosity of the tibia, curving around the front of the knee from one to three inches below the tubercle of the tibia and ending at a point half an inch below the head of the fibula. The ligamentum patellæ is reached, divided, the knee flexed and the lateral and crucial ligaments cut through; the knife is slipped behind the joint, an outward cut made and a short posterior flap formed. The edges of the flap are united, which brings the line of cicatrix well behind the condyles of the femur. In this operation the patella is preserved and, in my opinion, the articular cartilages of the femur should also be retained.

2. The bilateral flap method of Stephen Smith: An incision is made beginning below the tubercle of the tibia, curving downward and forward around the outer side of the leg, inward and backward to middle of leg, then upward to the popliteal space. Another incision, a counterpart of this, is made on the opposite side of the leg, the joint opened and disarticulated and the edges of the wound united by interrupted silkworm gut sutures.

3. Cardens' operation, in which a large anterior cutaneous flap is made. The deeper structures are divided down to the bone above the patella, the posterior incision is made, transversely from without inward on a level with the base of the anterior flap; the lateral and crucial ligaments are cut, the limb divided and the edges of the skin flap sutured.

4, is Stokes' modification of Gritti's operation. A long anterior and short posterior flap is made, the bone sawed through above the condyles, the posterior surface of the patella denuded with a small saw, the freshened surfaces of the patella and femur brought into apposition and sutured by catgut passing through the muscles of the thigh and the margin of the patellar structures.

A great objection to this operation is the sliding of the patella on the end of the femur and its annoyance to the patient as well as the danger of non-union occurring between femur and patella. I have obviated this by peeling back the periosteum from the lower end of the femur and, after approximating the femur and patella, sewing the periosteum to the margin of the patella. This makes a clubbed end to the femur and strengthens its attachment to the patella. Drainage should be used in all amputations at the knee. That operation which retains the patella is the preferable one. I am also of the opinion that all injuries which necessitate immediate amputation should be operated by the antero-posterior flap method with simple disarticulation, as this is the most easily performed. In operations of election, Stephen Smith's lateral flap or Stokes' modification of Gritti's should be selected; the latter, in my judgment, being preferable in robust persons, as it requires so much more time to perform, the lateral flap method being restricted to weakened constitutions.

The operation of simple disarticulation with preservation of the patella affords an excellent stump for bearing weight and in indiscriminate cases is the preferable operation. Gritti's operation leaves a bad stump, as the edges of the wound almost invariably become painful through pressing upon the socket of the artificial limb. Stokes' modification of this operation with the femur sawed through about two inches above the condyle, is a much preferable operation.

In all of these operations the skin should not be allowed to become adherent to the bone, as it is certain to cause pain and discomfort by being dragged upon by the artificial limb. Hence the advisability of preserving the patella.

The tendency of the patella to retract on the front of the thigh can be obviated by severing the quadriceps tendon above the patella.

(To be continued.)

French Association of Urology.

This association held its second annual general assembly at Paris in October, with Prof. Guyon in the chair, and a large attendance, including many foreign corresponding members of the association. In the address on "Hypertrophy of the Prostate," Carlier remarked that the five hundred cases on record in which castration has been performed, show a remarkable variety in the results obtained, some extremely successful and others entire failures. The consecutive mortality is quite large, 19 per cent., probably due to the previous physical condition of the patients. The operation has succeeded in cases in which there seemed scarcely any hope and has failed in others in which it seemed urgently indicated. It is difficult to explain the retrogression of the lesions if we accept Launois' theory that they are due to arterio-sclerosis, but if we adopt Albarran's suggestion that the hypertrophy of the prostate is a hypertrophic cirrhosis of glandular origin, we can understand better the atrophy of the enlarged prostate after castration. Motz has found that 63 per cent. owe their hypertrophy to the abundance of glandular tissue. Arterio-sclerosis was not observed in the cases in which the glandular tissue was extremely abundant, nor even in those in which the glandular tissue formed one-half of the section. But the clinic is not able yet to differentiate between the hypertrophy due to glandular tissue and that due to the connective or muscular tissue, or sclerosis. Castration has accomplished many remarkable cures, and often induces a rapid decongestion of the prostato-vesical apparatus, but its uncertainty, with its other disadvantages, forbid it a brilliant future. Resection of the vaso-deferentia is still more unreliable, and he thinks it probable that well-managed catheterization would have reduced the congestion of the prostate, as well as the vasectomy, in the successful cases. The future of this operation is therefore no more promising than that of double castration. Albarran described a new operation, which he calls "Angioneurectomy of the Cord." It consists in resecting for a short distance all the elements of the cord, with the exception of the vas deferens, the artery of the vas, and one or two of the accompanying veins. He has performed it on numbers of dogs and in three months the testes were completely atrophied. The prostate at the same time showed generalized atrophic lesions similar to those secured with double castration. This operation has been performed on a patient, but too recently to announce the results. Legue observed that if vesical contractility is entirely gone, intervention is useless. It only promises success when the lesions are recent and probably not severe. In incomplete retention with diminished but not suppressed vesical contractility, he has obtained excellent results with both castration and vasectomy. Desnos reports the observation of 296 elderly patients with urinary troubles. In 220 the prostate was enlarged. Among these there was retention in 112 and 108 without. Under the age of 65 there was retention in 14 to 80 without. Above this age the proportion was reversed, 98 with retention to 28 without. Examination of 76 patients with retention, but without enlargement of the prostate, showed the same relative proportion in regard to the age. The conclusion seems to be that the prostatic hypertrophy is not a factor in the retention of urine, a conclusion evidently exaggerated, but still not without significance. The recent results reported show for castration seven brilliant successes (Legueu, Chevalier, Loumeau and Motz); two complete failures; three much improved. Loumeau noticed a decrepitude and weakness in his two cases afterward greater than the age warranted. His 21 vasectomies did not affect the functions nor the condition of the prostate in any case. Carlier reported 9 satisfactory vasectomies. Motz 3 vasectomies; 1 case cured; 1 not benefited, and 1 died in seventeen days. Nicolich 27 vasectomies; 8 completely cured; 3 still continue to have sexual relations; 14 improved; 5 unaffected. One vasectomy was reported in which the patient was relieved of some calculi at the same time, and possibly the marked benefit derived may have been due to this fact. No new cases of psychic disturbances from either castration or vasectomy were noted in the reports presented.

Carlier reported a case of tumor in the left kidney the size of a man's head with periodic attacks of hematuria but no other disturbances. The general health is perfect, although the patient has been carrying the tumor for ten years. He queries whether the result would have been any better after nephrectomy than at present. Chevalier described a case in which one kidney had been removed for uropyonephrosis, followed later by a similar condition in the remaining kidney with total anuria and grave symptoms. Lumbar nephrotomy released an enormous quantity of urine and the patient recovered at once, although the fistula persists to this day and all the urine is discharged through it; Chevalier considers it the safeguard of her health, as renewed tension of the kidney would certainly terminate fatally and advises keeping the fistula open the rest of her life. Bégouin stated that absolute anuria from calculi lasting forty-eight hours should be treated like a strangulated hernia. If medical treatment (morphin, electrization and massage of the urethra, elastic compression of the inferior members, etc.) energetically applied, is not followed by success in a few hours, an operation should be performed without delay. Legueu and Donnadieu consider five days the longest limit of delay. Numerous incidents were related in which intervention at the fifth to seventh day were followed by death. Although the operation had succeeded in restoring the functions, it had been too late to save the patient from uremic intoxication. "The importance of varicocele in the diagnosis and prognosis of renal tumor" was confirmed by Legueu, who has established that the compression of the spermatic vein is not produced by the tumor, but by degenerated ganglia. The varicocele is only the external manifestation of the secondary adenopathy, and bears no proportion to the size of the tumor. If a cancer therefore is accompanied by a varicocele, the conclusion should be that there is already ganglionary propagation. This conclusion attenuates the hopes based on the small size of the tumor, and if operated, the ganglionary masses should be removed with it. Eraud's address on "Non-gonococcic Uretritis" emphasized the prevailing tendency to consider that specificity comes less from the species, whose rôle is rapidly dwindling in importance, and more from the poison, which is constantly acquiring greater significance. He concluded with the statement that the problem is more complex than hitherto supposed. Along with the polymorphism of the microbes there is the question of the toxalbumins, scarcely outlined as yet, which may locate farther still the mechanism that we have been ascribing to the single rôle of the microbe; in other words, behind the microbe hides the poison. Hogge urged that greater attention be paid the prostate in cases of primary urethral suppuration, as its anatomic conditions render it especially liable to react to inflammation. Carlier and Daret observed that the vesical phenomena accompanying renal tumors and tuberculosis must not be considered a counterindication to surgical intervention otherwise called for, as they frequently are but a reflection of the renal trouble and subside with it. J. Albarran confirmed the success of his cystoscopic catheterism of the ureters already announced, and Sorel described a form of neurasthenia in which acute retention occurs periodically, cured by catheterism. Boursier suggested that a bath will sometimes cure these cases if catheterism is difficult.

PRACTICAL NOTES.

Pruritus an Early Symptom of General Paralysis.—Sarbo has observed two cases in which an intolerable pruritus was the first symptom of the disease.—*Semaine Méd.*, from *Pesth. med. chir. Presse.*, Sept. 12, 1896.

Parenchymatous Injections of Alcohol in Actinomycosis have been found a valuable adjuvant of the potassium iodid or surgical treatment. If they do not cure directly they render the foci more amenable to other treatment, especially surgical intervention.

Thyroid Chlorosis.—Capitan believes that certain forms of chlorosis are traceable to disturbances in the thyroid gland, and has found marked improvement follow iodin treatment, and also that the patients were almost entirely cured in four to five weeks on administration of iodothyrin tablets.—*Semaine Méd.*, December 22.

Buckskin Dressing for Eczema.—Davesac has found that buckskin applied over the salve, fits smoothly to the surface, yielding to every movement, never rots nor produces erythema, does not absorb the salve and does not stick to the tissues, while it is easily washed and keeps the dressing moist inside and dry without, and the scabs leave a healthly surface when they drop off.—*Semaine Méd.*, December 22.

Radiography of the Skull.—Contremoulins' apparatus locates a foreign body in the skull with absolutely mathematical accuracy, but its expense forbids its general use, although it is highly endorsed by several members of the Paris Acad. de Méd. Approximate accuracy is secured by Mergier with a very simple and inexpensive apparatus, which has rendered invaluable service in the hands of Pean and others. He first quarters the field with two straight wires at right angles, which alone is a great help in locating the foreign body.—*Bulletin de l'Acad. de Méd.*

Liebmann's Method of Treating Stuttering.—A hundred severe cases cured in the brief space of four weeks are reported by A. Liebmann of Berlin (*Memorabilien*, November 13). He has the patient repeat sentences after him, drawling the vowels and pronouncing the consonants sharp but distinctly, maintaining the conversational tone throughout without any rhythm, and avoiding the singing tone altogether. When the patient finds himself thus speaking several sentences fluently at the first sitting the psychic stimulus is immense. The method can be applied to quite small children.

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SATURDAY, JANUARY 22, 1898.

THE MEDICAL CARE OF THE SEAFARING CLASS.

The U. S. Marine-Hospital Service has in late years come into such notoriety in connection with the proposed establishment of a National Department of Health that its proper office has quite dropped out of sight. A considerable number of educated people, even among the medical fraternity, believe it to be an institution for the care of sick *marines*, and many others, who are cognizant of the Marine Corps as a part of the United States Navy, identify it with the medical department of the naval service, and infer that this association with National vessels and through them with foreign countries where naval officers are brought in contact with the breeding-places of the great maritime pestilences, justifies the assignment to it of the duties of a seaboard quarantine. This confusion of function has been one of the obstacles in the way of the establishment of an organized independent National Health Department. The officers of the Marine-Hospital Service know nothing practically of these alien pestilential breeding-places; they have no reason to know it. Their duties properly restrict them to the treatment and care of the sick and disabled seamen among the crews of merchant vessels, at the commercial ports on the sea-board and lake-board. The U. S. Marine-Hospital Service was created for this purpose and for this solely. Its hospitals have been built and dispensaries and sick-quarters established for the benefit of the crews of merchantmen only, as U. S. Naval Hospitals receive only the officers and crews of men-of-war and other National vessels, the sailors and marines (sea soldiers) of the U. S. Navy. For this medical care of the mercantile class, Congress has appropriated liberally and the numerous Marine Hospitals have been erected well equipped with every modern appointment and officered by a corps of carefully selected, thoroughly competent physicians and surgeons of deservedly high repute in the profession. In the organic law, instituting the Marine Hospital-Service, this was all it was expected to do. The relegation to it of quarantine duties, a part only of the responsibilities of a National Health Department, has come about without predetermination, and now that the wisdom of such an assignment is contested, the claim is made that the material for such a department exists within the Marine-Hospital Service, which can be developed without much further expense to the Government. An establishment already equiped as this is, it is said, can do all the work required without change of personnel, additional expenditure, or interference with the other duties of the officers to be diverted to it.

Can this be so? Is it possible that the officers of this strictly hospital corps can be detached from their original and legitimate duties to assume this charge without the appointment of others to take their places? Why should the physician employed to take care of the sick of the vessels of the merchant service be sent to foreign countries and located at foreign seaports and consulates? With better reason, medical officers of the U. S. Navy might be detailed for this duty. Is there any other reason for the hybrid sought to be consummated than the accidental one that the officers of the Marine-Hospital Service are employes of the Treasury Department, which Department has control of the commerce of which these merchant vessels are the carriers. There is very evident disposition at Washington for each department to extend its operations in every possible direction and any attempt at abridging this amplification is resented. As sick sailors were taken in charge by the Marine-Hospital Service and cared for in the Marine Hospitals in cases of ordinary ailments when they were affected with communicable diseases of the pestilential class, it was taken for granted that this Service was the proper one to consider the means for the prevention of their communication; and as this evidently was a matter of National cognizance, involving, as it did, foreign relations, the need was admitted for some uniformity in the provisions for the inhibition of these maladies as menaces of the public health; and as other diseases were no less prejudicial to the general health, the necessity for their restriction and control was recognized and it was evident that the department which had the power to hinder the spread of foreign-born communicable diseases should also have control of these, and hence the assumption that the Marine-Hospital Service was that specially endowed epartment. Thus, step by step this Service has strayed farther and farther from its proper field, and the time has come when the medical profession shall consider whether the National sanitary interests do not demand something else for their administration than the makeshift adaptation of a bureau specially constituted for other purposes.

But quarantine is only a small part of the matter; there are great and important functions for the new department quite outside of quarantine and irrespective of it which can not be performed satisfactorily by the Marine-Hospital Bureau.

Happily the State boards of health are examples of such an organized establishment for the Nation as they are for the States, a National Department of Health harmonizing, unifying, connecting and supplementing all these in accordance with the representative character of our American institutions. The Department of Health as at present proposed simply creates an independent bureau, such as the Department of Agriculture was before its chief officer became a cabinet officer, and such as the Department of Labor now is. An *ad captandum* appeal for the sympathy of the medical profession has been made in the gratuitous assumption that the advocates of the bill before Congress, which has the *indorsement* of the American Medical Association, the American Public Health Association and the State boards of health, are urging the creation of a Department of Health with a politician instead of a physician as its chief. Were there but one physician in the United States eligible by reason of recognized ability as a sanitarian to be chief of such a department this might be feared, but as long as such men live as Walcott and Abbott of Massachusetts, Stephen Smith and Raymond of New York, Rohé and Welch of Baltimore, Mathews and MacCormack of Kentucky, Holt, Wilkinson and Olliphant of New Orleans, Horlbeck of Charleston, Porter of Florida, and the multitude of able and experienced sanitarians of the Northwest, who drew their inspiration from the illustrious John H. Rauch of Illinois, all physicians, there is no reason to fear that an honest, intelligent, able and impartial President of the United States, such as is the present incumbent, will ever call to this high office a man who is not physician as well as politician, using the latter word in its honorable and legitimate sense of "one versed in the science of government." The Supervising Surgeon-General of the Marine-Hospital Service has abundant opportunity for the administration of his own bureau, and were he ten times as able he can find therein all that he can do, if he do that all well. *Ne sutor ultra crepidam.*

To help the cause, let each member of the Association write his Senator and member of Congress at once in regard to this matter. If it is understood that the *whole* profession really take an interest in the matter the local lobbyists at Washington will be powerless to stop the reform.

THE SURGERY OF THE THYROID FROM A NEUROLOGIC STANDPOINT.

In a suggestively written paper in the January number of the *American Journal of the Medical Sciences*, Dr. J. J. Putnam uses the following words: "We are rather in the habit of assuming that the removal of large portions of the thyroid does no harm, provided it does not cause myxedema. But the probability is that we shall learn to recognize affections which lie between myxedema and health, as well as peculiarities of development and disorders of nutrition for which the thyroid is more or less responsible." . . . That this is a statement of fact will hardly be disputed by any neurologist, but that it expresses a truth that has as yet been insufficiently impressed on the profession generally is another fact the importance of which is not likely to be over-estimated. It is only within a comparatively brief period that we have learned that the thyroid had any definite function and our knowledge of its physiology is still very far from being exhaustive. The dangers also of interference with it are as yet also only partially known, but it is certain that they are not confined to the operation itself. The cases of sudden fatal dyspnea occurring hours after an apparently prosperous operation in Graves' disease, recently reported by Debove and others, are in evidence of this, and Dr. Putnam adduces other important facts and arguments against any too venturesome surgery of the thyroid gland. Among these are the experiments of Halsted showing that excision of the gland in dogs had a serious and very evident disturbing effect upon their offspring and that even very slight operative interference produced hypertrophic changes and apparent increase of secretion in the gland itself; and the observations of Kocher of goiter and cretinism inherited from parents with no disease other than impaired thyroid function are also cases in point. Still another fact brought forward by Putnam is the one that removal or atrophy of the thyroid in infancy checks the growth and function of the reproductive organs, and gives rise to the various disturbances of development that follow the suppression of this very important function. The close relations of the various internally secreting glands, the thyroid, the testicles and ovaries, the suprarenal glands, and the pituitary body, for this it seems probable must be included in this category, are revealed in many pathologic conditions and the thyroid as the largest, and presumably the most important, has apparently a larger part in the disturbances than any of the others. It seems to be involved to some extent in many cases of acromegaly; its relations with the genital development have already been mentioned, and its implication in many pathologic conditions of organs is probable and is strongly suggested by the clinical history in certain cases of Graves' disease. Seeligmann has indeed recently reported a case of this affection apparently closely associated with genital disorder in which he obtained decided benefit from the administration of ovarian extract, thus adding another suggestion to the therapeutics of the disorder.

When any organ is removed, as Putnam says, two factors are set in operation which may have more or less important effects upon the system generally. One of these is the action of toxins, the other is the effort of the organism to adapt itself to the new and changed conditions. The first of these is important enough in the case of removal of the thyroid gland, but the other, from what we are beginning to know of its physiology, must be even more important. Because the function of the organ is already deranged it does not necessarily follow that matters will be remedied by its removal. The operation may only make a bad matter worse. The mortality of thyroidectomy, according to Poncet, is from 15 to 30 per cent., which is alone enough to induce caution. When the facts brought forward by Dr. Putnam are also considered, the known and the possible and hinted though yet unknown effects of thyroid ablation, there is still more reason for prudence and hesitancy in this operation.

Of course when a goiter has become a dangerous mechanical embarrassment to important functions, or when a tumor exists in the thyroid that by its growth and situation has become a threatening danger, the case is clear and operation may not only be justifiable but necessary. It is in such affections as Graves' disease, in which thyroid operations are still somewhat popular, that we are likely to have not only useless but dangerous surgery, and the time seems to have come to emphasize the cautions implied in Dr. Putnam's paper. The theory of hyperthyroidization in this disease, though it has apparently much in its favor, is not yet sufficiently demonstrated, and even were it so would not form a justification for any indiscriminate or frequent practice of operative interference. Graves' disease is not by any means a hopeless disorder under medical treatment, even in its advanced stages; it is therefore impossible to say when surgery is indicated as a last resort. When the facts of its absolute inefficiency in perhaps the larger proportion of instances in which it has been tried, the immediate dangers of the operation which are not slight, and the remote ones pointed out by Dr. Putnam, are all taken into consideration, it would seem that it ought to be relegated to innocuous desuetude.

ON THE PRESENCE IN THE BLOOD OF FREE GRANULES DERIVED FROM THE LEUCOCYTES, AND THEIR POSSIBLE RELATIONS TO IMMUNITY.

H. F. Mueller[1] of Vienna recently described certain small, round, colorless granules as constantly present in the fresh blood. These granules were regarded as entirely distinct from the blood plates. This observation did not seem at first to attract very much attention. In the last number of the *Bulletin* of the Johns Hopkins Hospital Wm. R. Stokes and Arthur Wegefarth publish an article from the Bacteriological Laboratory of the Health Department of Baltimore, in which they state that they have confirmed Mueller's observation, and in which they recite a number of very interesting experiments that appear to throw considerable light upon the much discussed question of the relation of the leucocytes to the bactericidal properties of the blood serum and to immunity.

Mueller described these bodies as small, round and colorless, about the size of the finest fat granules. They are highly refractile and show a dancing molecular movement, but have no independent motion. Mueller concluded that these granules are normal constituents of the blood, but he does not consider them as oxyphile or neutrophile granules that have escaped from the leucocytes, and he leaves the question as to their fatty or albuminous nature open. Stokes and Wegefarth were able to demonstrate these granules in the fresh blood taken in dispensary clinics and otherwise from about 500 persons. Having observed that these granules occurred in all specimens of blood examined, the question naturally arose as to their origin. It was noticed that when examined by artificial light, as for instance by means of the Welsbach gas burner, the granules resembled very much those found in the protoplasm of the oxyphile and neutrophile leucocytes. When a blood specimen is surrounded by vaselin so as to prevent drying and then exposed to a temperature of 35 degrees C. for an hour or more, the granular leucocytes became actively ameboid, the granules in the neutrophile cells become very lively, and the number of granules in the blood plasma becomes perceptibly increased. The characteristic dancing motion of the granules of the neutrophile leucocytes is shown very well by simply mixing the drop of blood with an equal amount of distilled water containing 1 per cent. of alcohol. The investigators believe they have noted that these granules may leave the protoplasm of the ameboid leucocytes.

Under similar conditions the granules in the oxyphile (eosinophile) leucocytes also show a tremulous motion, though less vigorously.

The blood of various animals was also examined as regards the presence of these granules, and it was found that the observations made concerning the human blood are in the main applicable *mutatis mutandis* to the blood of horses, rabbits, cats, guinea pigs, rats, frogs, fishes, etc. These observations strengthen the conclusion that the granules of the oxyphile and neutrophile leucocytes may appear as free bodies in the blood serum.

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[1] Centralb. f. allg. Path. u. path. Anat., viii, 1898.

After reviewing the two principles in regard to immunity, viz., METSCHNIKOFF's well known theory of phagocytosis, and the theory of those investigators that attribute immunity to the bactericidal properties of the blood serum and to the extracellular action of the leucocytes, STOKES and WEGEFARTH detail certain investigations for the purpose of determining whether there existed any difference in the bactericidal power of fresh blood serum before and after it had been filtered through new sterile Müncke filter cylinders. From these experiments it appears to be demonstrated that the filtration of the serum of the guinea pig and rabbit through new porcelain filters removes its normal power of causing the agglutination and cessation of motility of many motile pathogenic bacteria and of destroying large numbers of these organisms. This power can be restored by adding to the serum leucocytes, free granules and red blood corpuscles. As the red blood corpuscles are not regarded as bactericidal it follows that the restoration of the bactericidal power is due to the leucocytes and free granules, and that these cells can furnish bactericidal material.

Having demonstrated that the leucocytes not only contain bactericidal substances, but also under certain conditions can give up the power of their protoplasm to the surrounding medium, it naturally became tempting to try to show by means of some experimental proof that the germicidal substance and the granules that leave the leucocytes are related or identical. This proof is, however, extremely difficult to furnish. STOKES and WEGEFARTH added the typhoid bacillus to various normal bloods and serums, but did not notice any distinct attraction of the bacillus for the free granules. Having immunized guinea pigs against the typhoid bacillus and adding a 24 hour culture of motile bacilli to the fresh blood of such animals it was found that the bacilli became motionless and clumped, and that in about fifteen minutes fine granules could be seen around the periphery of the clumps and in the meshes of the massed organisms. Often several granules could be seen about a certain bacillus. It will be recalled that VAUGHAN and NOVY[2] extracted a germicidal nuclein from the serum, which they think is derived from the leucocytes, and that HANKIN[3] believes that the granules of the eosinophiles gradually become dissolved in the serum and thereby furnish the protective substance or alexin found in the blood serum. The work of KANTHACK and HARDY[4] is also very suggestive in connection with this phase of the subject.

Upon injecting anthrax bacilli into the various lymph sacs of frogs they found that the destruction of bacteria could be divided into two distinct stages: In the first oxyphilic leucocytes approach the chains of bacilli. These cells then apply themselves to the surface of the bacilli and discharge their granules by quick, streaming motions, when the bacilli begin to show signs of degeneration. Then follows phagocytosis of the degenerating bacilli by the hyaline cells. STOKES and WEGEFARTH repeated these experiments and found that any distinct clinging of the oxyphiles to the anthrax bacilli did not occur, but that the cells very soon appeared to contain much smaller numbers of granules than before, and that many large (oxyphiles) granules could be found free in plasma, as well as small, dust-like granules which they believe are derived from the polymorphonuclear (finely granular) leucocytes. They conclude, therefore, that it seems likely that the free granules both from the oxyphile and the finely granular or neutrophile leucocytes may weaken and destroy anthrax bacilli by their presence in the plasma, and that the work of destruction is completed by phagocytosis.

The many suggestive facts which have been hinted at imperfectly induce our authors to advance the following theory: First, the bactericidal power of the leucocytes of the blood and the serum of man and many animals is due to the presence of specific granules, derived especially from the neutrophile and oxyphile granular cells. Second, in order to resist the action of invading bacteria the granular leucocytes can give off their granules to the surrounding tissues. Third, this throws light on the bactericidal powers of cell-free fluids, and this mode of production of alexins also offers an explanation of the hyperleucocytosis of infection. At the same time the supposition or observation is not disproved that leucocytes can act as phagocytes and take up bacteria either while alive or after they have been destroyed by the germicidal granules. It seems to us that these investigations are of especial interest, because they appear to throw additional light upon the protective and adaptive processes that occur in the reaction of the organism to local and general infection, and because they in a measure reconcile the two theories that obtain in regard to the mode that these protective mechanisms perform their functions, namely, that of intracellular action or phagocytosis and that of extracellular action due to the microbe-killing powers of the serum. The investigations also open up an apparently fertile field for further studies in regard to these important phenomena as they occur in the various forms of infection and intoxication.

MEDICAL LIBRARIES.

In going over a list of the principal public medical libraries of the country one is struck with their peculiar distribution. We notice one in Maine, another in South Carolina, a third in Colorado, while between lie many more populous States, some of them known as centers of medical education, without any public medical library at all.

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[2] Ptomaines and Leucomaines, 1896.
[3] Centralb. f. Bakt., xii.
[4] Phil. Transactions, clxxxv, 1894.

Considering more closely the towns in which some of them are located the facts are yet more striking. For instance, in Maine the library is situated in Brunswick, a town of 6,000 inhabitants, the twelfth in point of size in that State. It belongs to the Medical School of Maine, Bowdoin College, and by the figures before us is larger than any other medical library in New England, outside of Boston. Again we find the Medico-Chirurgical Faculty of Maryland has a very respectable library, while scarcely one of the larger State Medical Societies has anything of the sort worth mentioning.

Medical libraries have not developed in response to certain peculiarly favorable conditions confined to large cities. It seems clear that most of them have been built up by the activity of a very few individuals, sometimes aided by a local institution or society, sometimes without any aid whatever. They are in many instances enduring monuments of the work of a single member of our profession, who perhaps was, apart from this, the busiest, most overworked man in his community.

These facts should be brought prominently forward because of the encouragement they give to others to take up this line of work. It seems that in almost any town in the country the conditions render possible the formation of a good medical library and whereever one is formed it will be a lasting public benefit.

The subject is one of real professional interest, and we are glad to learn that Dr. C. D. SPIVAK of Denver is collecting facts for a more complete account of the medical libraries of the country than now exists, to be brought before the coming Meeting of the ASSOCIATION in that city, and in due time to be laid before our readers. It is to be hoped that those who have given thought and labor to the subject will use this opportunity to place many valuable suggestions before the profession.

Dr. SPIVAK has himself suggested an important idea and has carried it into practical effect in connection with the Colorado Medical Library Association of Denver. He prepared a card catalogue of the medical works to be found in the private libraries of that city, which were not represented in the public medical library. In this way he was able to add more than 6,000 volumes to the medical works generally available for reference to the profession of Denver.

Some such plan might be followed in any large town or city and would be of very wide benefit to the profession. The essence of a reference library is to have the books obtainable, with some ready means of knowing just where each is to be found. It is not necessary that they should all be collected under one roof and one ownership. It is only necessary that their titles and location should be furnished in a well-arranged catalogue.

Probably in every city in the country may be found several private collections of medical books. Even where large public libraries exist they lack many valuable books of reference that might be found on the shelves of private libraries in the same city. A card catalogue representing all of these books, and giving their location and the hours at which they might be consulted, would furnish each of these cities with a good practical reference library, or greatly extend the value of the library it already possesses.

The work of preparing such catalogues should be done by the younger members of the profession; they can furnish the time and energy, their older colleagues can furnish the books. Only bring the two together and a great professional benefit will result to both. The physician with a large private library finds with each addition to it an increasing difficulty in remembering just what he has to refer to and comes to feel keenly the need of a good catalogue; which he can not supply for himself, and can not secure without the aid of some one with a medical education. The catalogue of his own books would be worth far more than the inconvenience of having them consulted by others would ever cost; and to have with it also the access to all medical works in his city that he does not possess would be a practical extension of his library that he could not hope to accomplish in any other way.

On the other hand, for the young man who will take up this work of cataloguing, the opportunity is one of unmixed benefit. In arranging and classifying the medical books in the catalogue, he will be arranging and classifying the facts of medicine in his own mind; and at the same time learning just where he can put his hand on any particular reference when he wants it; and acquiring for all practical purposes (when he most needs it), a library such as he could never hope to buy for himself, no matter how great his professional success in after life.

With the private medical libraries of a city thus connected by a catalogue it would be almost certain that with the death of an individual owner his collection of books would not be allowed to become scattered or sold as waste paper. But the necessary effort would be made to secure them for permanent usefulness, in the possession of some medical society, or general public library, or educational institution, there to develop by accretions of similar sort into a true public medical library.

Will there not, before the time of the Denver Meeting, be other cities to report experience with Dr. SPIVAK's plan?

CORRESPONDENCE.

The Lepra Conference Again.

NEW YORK, Dec. 15, 1897.

To the Editor:—Dr. Dyer, one of the editors of the *New Orleans Medical and Surgical Journal*, has published on his return from Berlin, where he attended the Leprosy Conference, not only a very accurate (I have the Berlin *Wochenschrift* before me) report of the doings of the Conference, but also a very curious one. It has a quality, which I'll be bound, will not be encountered in any reports of the same events, now being published or hereafter to be given to the world by his European colleagues; it will be found even, or rather especially, outside of the profession intensely amusing. Would those Teutons, Latins, Scandinavians, Slavonians, have ever imagined that the novelty of their European festival, the great men assembled in the capital of Germany, the beer and the emperor could violently *wake to ecstasy the living lyre* of a Yankee (as they call all Americans)? This ebullition of Pindaric lyricism (for has not the author come back, as it were, from the Olympian games; not, indeed, with palms and bays, but with that precious badge?) is not, however, the only condiment (excuse mixed metaphors) with which Dr. Dyer has tried to give flavor to his tale. Something of a more pungent nature seems to have been required by his literary taste, *das Strenge mit dem Zartem*; it would be ridiculous to doubt that Dr. Dyer understands so much German. He thus conceived the happy idea of having a Turk's head, at which he might pound away for the delectation of his audience, and perhaps, who knows? to make good some harmless boast uttered in the blissful trance of those never to be forgotten days—that he would settle the hash of his Yankee colleague (give him time to return!) and let him have it right down the neck. Dr. Dyer, in fact, has gone out of his way to throw out at me a handful or two of vague and rather obscure obloquy. Does Dr. Dyer really think himself such a deep rooted authority because, forsooth, he belongs to what he ludicrously calls the *personnel* of the Berlin Conference, that he may safely dispense with knowing himself what he means when he girds at his neighbor? "The relation," says the New Orleans member of the Berlin *personnel*, "of Ashmead to the Berlin Conference was well shown when a resolution of his relating to a conference in 1898 was quietly dropped without discussion. Ashmead wrote in the *Sei-I-Kwai*, in far-off Japan, a vituperative article which reflected upon the intelligence, upon the purpose and upon the ability of the *personnel* of the Conference in Berlin."

First, then, Dr. Dyer avers that Dr. Ashmead wishing to proclaim his contempt of certain European personages (who ought to have been sacred to him, as they are to Dr. Dyer), of their *intelligence*, their *ability* and their immediate *purpose*, conceived the extraordinary idea of going to *far off Japan* and there (probably at the foot of the renowned Fujiyama) blazed away and relieved his bile by unlimited vituperation. The imputation of such nonsensical conduct I consider as downright slander. If there is anything that I feel obliged to say (even if it should be vituperation) I am not in the habit, as my friends and even the others will testify, to run to the "Flowery Kingdom" or to the antipodes. The fact is, that the article in question was published February, 1897, in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, *and that reprints of it were sent to all known (to me) European leprologists.* The *Sei-I Kwai Medical Journal* of Tokio reprinted it July, 1897. Dr. Dyer, in a passage which I shall quote presently, speaks in a very indefinite and puzzling manner of *Ashmead and his methods*. Is this mention of my article, as *published in far-off Japan*, an instance by which we may judge *Dr. Dyer and his methods?*

As to the quiet dropping of Dr. Ashmead's resolution relating to a Conference in 1898, it does not by any means, whatever Dr. Dyer says *show Ashmead's relation to the Berlin Conference*. This rash assertion is simply the result of careless ignorance. All those with whom Dr. Ashmead has been in correspondence with for the last two years in relation to the Leprosy Congress know better. The relation of Dr. Ashmead to the Conference is shown by the presence in it of twenty-two persons who represented their governments respectively. I do not wish to explain again here Dr. Goldschmidt's and my own idea of an international committee, formed by delegates of the different nations interested in the question of leprosy. I have, single-handed, fought for that idea and in a large correspondence discussed it with men of all parts of the world. Both Hansen and Ehlers were against it, and I say nothing that I can not prove. It did not obtain a complete triumph, I am sorry to say, but that it was, at least in a certain measure, successful no one can seriously deny. In this, modest as the victory may seem, appears *the relation of Dr. Ashmead to the Conference.*

"Ashmead conceived the Conference, and because men of world wide honesty and repution were making it a success, he tried to discourage interest in it by writing abuses of these men. In justice to Goldschmidt, to Hansen, to Arning, to Lassar and to Ehlers, who suffered most, the above should be said. Goldschmidt allowed himself to be led into the organization of a conference because of the objects aimed at and washed his hands of Ashmead and his methods as soon as he saw behind the veil.

"This was the end of the eventful Lepra Conference, one which Ashmead ridiculed because he was not ring-master and manager as well as director, etc."

When Dr. Dyer states that Dr. Ashmead, after conceiving the Conference tried to discourage interest in it he does not seem to understand what an incredible mental phenomenon he is describing; this statement, which seems to Dr. Dyer quite natural and needing no further explanation, hardly requires to be seriously refuted; for am I not writing these lines in my office and not in a lunatic asylum? However, some persons who have been either disgusted or offended or abused by me are quoted. The reader of the *New Orleans Medical and Surgical Journal* is informed that shocked by the wickedness of my ways, Dr. Goldschmidt at last determined *to wash his hands of me.* It is clear that he was for a long time in utter ignorance of my nefarious proceedings, for he has written to me and encouraged me for the best part of the last two years, complaining of some persons considerably more than I did myself. However, it occurred to him *to look behind the veil*, and then he did not hesitate one moment to perform those condemnatory ablutions. But what did he see behind that metaphoric obstacle to sight? Evidently nothing but the constant, laborious, undismayed activity with which Dr. Ashmead was and still is trying to call the attention of the public to the possibility of stamping out by international arrangements a disease, of which as Dr. Dyer says, 2,000,000 of men are the victims, and which threatens the other millions. But why should I be accused of veiling what I was unremittingly proclaiming with all my might? O, Lord, clear our style of metaphors!

But there are others, and I ask myself with sincere searching whether I ever blasphemed (it could not be called with a milder name) against Hansen. When I most displeased this eminent leprologist was, to the best of knowledge, when I intimated that the microscopic creature on whose discovery his great fame rests, has distinguished itself by gigantic ingratitude, inasmuch as it has never done anything in return for all the regard, study, observation, cultivation, etc., which have been lavished on it. That is hardly abuse. I also said that Hansen had been compelled, *nolens volens*, to swallow the diluted delegational idea. That is the truth, and if it was not it would not be abuse, it would be a lie, or perchance, a mistake. And Arning? He and I are on the friendliest terms, which I am ready to show, if required. And Lassar. Let Dr. Dyer indicate one passage in any article or pamphlet of mine in which he was abused. I am not quite so sure, I admit, about Dr. Ehlers. I made, in speaking of him, a very few and, in my intention and opinion, very harmless jokes, for instance, about the 159 lepers he looked at in

Iceland. Was this joke or abuse? Dr. Dyer's article first conjured up that doubt in my mind. Ought not he to know? Is not he a judge? Who among his numerous readers will ever forget his delicate appreciation of Dr. Virchow's attic joke, when this venerable sage expresses his regret not to have been informed at an earlier period that free beer was to be had for the asking at the lunch counter!

There is, however, in these lunges of Dr. Dyer, made with what I take the liberty of calling a vicious but also ridiculous carelessness, one which claims a little more attention. It remains for me to explain to Dr. Dyer's readers, should they come across these lines, what must, if they take Dr. Dyer *au sérieux*, rather startle them. How could Dr. Ashmead, in New York, aspire to be the ring-master (whatever that may be) and manager as well as the director of the Berlin Lepra Conference? And yet, this is easy to answer. Dr. Dyer means that Dr. Ashmead in every article he wrote for a long time insisted upon one point, from which he never swerved for one moment, that the Conference, or Congress as it was originally called, could only do one thing that was useful: obtain the enforcement everywhere of absolute isolation and the enactment of laws preventing the contamination of one country by another; that every thing else was vanity; that what would be said and read in the Conference and printed by the authority of the Conference, could be said, heard and printed everywhere without conference; that the time for talk should be freely admitted to be past, and that the mind of those who attended the first Leprosy Congress should rise to one great conception, easy to understand and easy to carry out and infinitely salutary to mankind. This is what Dr. Ashmead repeated indefatigably and, no doubt, he irritated some people.

There was once at Rome a senator who believed that the safety of his country depended on the destruction of a certain town in Africa. This man allowed no influential person to remain in ignorance of his views, and proclaimed them in and out of season after every one of his speeches in the senate: *Carthago delenda est*. Yet no one ever suggested that he intended to become the ring-master, manager and director of the republic. Dr. Dyer, happily, did not want to destroy Carthage, and could enjoy himself without getting at loggerheads with everybody.

"I was waked by the band Sunday morning and saw a host of soldiers going to the palace for new flags, and they marched merrily and looked well and they were men. Long live Berlin! Long live the Emperor! Long live the Lepra Conference and its work!"

Suppose now I should indulge in some banter like that of which I rendered myself guilty against the renowned *privat docent* of Copenhagen, this dithyrambic gush, this touching imperialism (which might draw tears from a stone), and even the innocent enjoyment of the medal (reproduced in Dr. Dyer's paper) which informed those whom he met in Berlin that the bearer was a member of the Conference and that his name was Dyer, would suffice for a little string of light pleasantry. But it might be abuse. Perhaps even quoting Dr. Dyer might be construed into abuse of him. ALBERT S. ASHMEAD, M.D.

Appendicitis.

DETROIT, MICH., Jan. 11, 1898.

To the Editor:—In the January 8 issue of the JOURNAL I found an article on appendicitis, by an old practitioner, opposing operation and advising conservative treatment.

The article refutes itself, as the report of eight cases with five recoveries and three deaths, or a mortality of 37.5 per cent., is so terrible that if surgeons would report any such mortality, a hue and a cry would be raised which could be heard across the continent. I simply want to call attention to it for fear that the article might have been overlooked. It is the same old story. By conservative treatment a good many cases will recover, and about 15 per cent will die. This man's statistics are far worse.

There may be surgeons who are ambitious and inexperienced and who consequently operate when a patient is convalescing and there is no need of it, but every experienced abdominal surgeon will refrain from operating when the patient is recovering, but will postpone it and urge an operation in the interval. However, all experienced surgeons urge *immediate* operation upon every case, claiming that if all cases are operated upon the mortality will not be more than 2 to 5 per cent. Although in that case a certain number will be operated upon who would never have another attack, still they can not be distinguished beforehand, and we claim best results by prompt operation in every case as soon as diagnosticated. Of those five cases which recovered in the article spoken of, four will have recurrent attacks; some will die with the second, some will die with the third, or the fifth, or the tenth, but all will die from appendicitis, not to mention the long continued illness and the suffering they undergo in the meantime. So that out of eight cases there will finally be one who will live and have no recurrences, and all the rest will be dead. While if the eight cases had been promptly operated upon the first day, seven at least would have recovered and not been in danger of any subsequent attacks, and one might have died.

With this and the other side of the question, any reasonable and conscientious member of the AMERICAN MEDICAL ASSOCIATION can easily decide which is the correct method of treatment.

Yours truly, J. H. CARSTENS, M.D.

X-Ray Blindness.

NASHVILLE, TENN., Jan. 10, 1898.

To the Editor:—Though possibly it may already have been mentioned, I am not conversant with any report on what may be called X-ray blindness. During the Centennial Exposition here this summer there were several X ray machines in operation. One of these was attended by a gentleman of my acquaintance, of more than average intelligence and observation, and also possessed of a fair amount of electric knowledge. He tells me that out of about 3,500 persons who looked into the tungstate of calcium screen, at his hand or other object, four were unable to see anything. They were not only unable to see the bones of the hand or other objects more or less opaque to those rays, but they could not even distinguish the fluorescent light; the interior of the box was just as dark to them as before the light of the tube was turned on. These individuals he allowed to make a number of trials, even bringing them back at night, so as to avoid the disturbance of daylight, but without avail; the screen remained persistently black. My acquaintance learned, also, that the general agent who installed the machines, possessed the same peculiarity. This gentleman said that though he had tried many times he had never been able to see anything in the screen. This condition, it seems to me, is one that would not be unexpected. The eyes of some individuals read, abnormally, certain colors, and that there should be some eyes unable to grasp the X-ray is no more remarkable than the phenomena of color blindness.

ERNEST B. SANGREE, M.D.

Another Interesting Case: An Impacted Quid.

CHICAGO, ILL., Jan. 15, 1898.

To the Editor:—The case reported by Dr. Tufts of Sioux Falls, in which death was caused by the sudden plugging of the bronchi with a quid of chewing tobacco, recalls a less tragic case in my own experience.

A number of years ago I had a paper-hanger at work for me, who was using as a stage to reach the ceiling he was decorating, the top of a ten foot partition. Busy at his work with his head thrown back as he looked directly above, he failed to notice that the board on which he was sitting was insecurely placed.

I had been watching the man, but had gone perhaps seventy-five feet away, when I heard a mighty crash, but no outcry. Calling out and receiving no reply, I hastened to the spot to find my man perfectly livid and completely unconscious. My first thought was that he had been killed, so free was he from all motion; no gasping and struggling, just an inert mass of flesh and blood.

The thought ran through my brain as I pulled his vest open to reach his heart, which, just as in Dr. Tuft's case, was beating, was that the distance the man had fallen had not been sufficient to produce such seemingly disastrous results. What was the trouble?

The man's mouth was open, and from it trickled a little tobacco stained saliva, hint enough to warrant my cramming my fingers down his throat and fishing out a great wad of moist fine cut that was simply packed in the back of the mouth, covering the trachea and extending down into it.

Hastily turning the man upon his face and giving him a few hearty thumps on the back, I had the satisfaction of seeing my patient within fifteen minutes cough himself back into lusty but somewhat profane existence.

The moral of my tale and that of Dr. Tufts is that the emergency physician should look out sharply for impacted quids.

JOHN E. BEEBE, M.D.

Bureau of Public Health.

UNITED STATES SENATE,
WASHINGTON, D. C., Dec. 23, 1897.

To the Editor:—Your favor of the 16th inst. has been received and read with interest. I note what you say with reference to the united effort on the part of the medical profession of our State, supported by the medical men throughout the country, in favor of the establishment of an independent bureau with a commissioner to be appointed by the President at its head.

There is no class of professional men in this or any other country more entitled to the highest consideration than that of the medical profession. Upon that profession the people always rely in times of physical distress in their everyday life, or in times when contagious diseases seize and threaten the lives of the people of a locality and the communities surrounding it, among whom the malady is likely to be spread.

I therefore should be very glad to be of service in any reasonable direction looking to the support and encouragement of the medical profession and also to the interest of the whole people. I think we have within a year or two had evidence that those in authority have failed in the performance of their whole duty in protecting the lives of the people against the ravages of yellow fever in certain portions of our country.

Wishing success in the conduct of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, I am, sincerely yours,

S. M. CULLOM.

National Legislation on Sanitation.

MILWAUKEE, Dec. 29, 1897.

To the Editor of the New York Medical Journal:—In an editorial in the last issue of your valuable *Journal* there appears the following statement: "The American Public Health Association bill seems to us a retrograde measure. It would involve a departure from all existing methods of departmental work. It would create, to stand between the executive of the department and the management of an epidemic, a deliberative body of forty-five men whose opinions would have to be had before action could be taken."

Permit me to state that this is not the meaning or intent of the measure at all. It is intended that rules and regulations can be made by the department concerning which every State and Territory can have a voice, the only satisfactory way such rules and regulations can be adopted, and that such rules shall be standing provisions under which the head of the department can act at any moment when occasion occurs and without any delay whatever. No other bill thus far presented does more than provide for quarantine regulations, and such regulations are to be under the entire control of the Marine-Hospital Service. States are to have no voice in the matter, but must submit to the federal government. There are no provisions in any measure presented, except the bill presented by the AMERICAN MEDICAL ASSOCIATION and approved by the American Public Health Association at its last meeting, that provides in any way for internal sanitation, vital statistics, etc., so much needed, and which are far more important than the maritime quarantine provisions, which are but a small part of the needed sanitary legislation in this country. To say that the bill is retrograde seems to the writer to result from a very imperfect understanding of the measure. It is true that the bill as printed contains a number of errors and is more or less ambiguous in its language. A new draft of the bill is being made, and when it is introduced into Congress it will present a clearer meaning and we trust will be less objectionable.

U. O. B. WINGATE, M.D.

Medical Courtesy.

SHELBYVILLE, IND., Jan. 11, 1898.

To the Editor:—I can not agree with you in your answer to R. A. H. on "Medical Courtesy," in the JOURNAL of January 8. My understanding is, and has been for more than forty years, that on this point of medical etiquette the rule is the reverse of that in social life, and for very obvious reasons. When a physician locates in a town, it is his duty to call on members of the regular profession at the earliest convenient time, if he is a regular physician himself. By this action he manifests his intention to continue in the regular profession and wishes to associate with its members.

He may, as is sometimes the case, be changing his location for the purpose of engaging in quackery, and to avoid any embarrassments, he should be left free to indicate his future intentions, which he can do in an emphatic manner by calling only on those of the regular profession.

Very respectfully, W. G. MCFADDEN, M.D.

BOSTON, Jan. 10, 1898.

To the Editor:—In the JOURNAL of January 8, page 104, "Medical Courtesy," I would suggest adding to the answer, but the newcomer should first leave or send his card as an introduction or announcement of his coming.

Respectfully, J. S. W.

ANS.—Amendment is accepted.

PUBLIC HEALTH.

Influenza at Angers.—The French exchanges mention that the hospitals at Angers are full and patients turned away, from an epidemic of influenza.

Hospital Contagion of Typhoid Fever.—A number of instances were related at the meeting of the Paris Soc. Méd. des Hôpitaux in which patients and nurses in the hospitals acquired typhoid fever, presumably from other patients. Stricter precautionary measures were urged upon the attendants and the use of special vessels, etc., for typhoid patients.—*Semaine Méd.*, December 22.

Health in Chicago.—The report for December, 1897, gives the total deaths during the month as 1,790, or 1.10 per 1,000 inhabitants, the rate for December, 1896, being 1.12 per 1,000. Of these 1,790 deaths 361 were persons under 1 year old and 204 from 1 to 5 years. The causes were: Diseases of the nervous system 260, pneumonia 221, consumption 168, diseases of the heart 135, bronchitis 106, acute intestinal diseases 77, diphtheria and membranous croup 73, cancer 70, typhoid fever 35.

Large Special Grant for the Control of the White Plague in New York City.—The Department of Health of New York City, after petitioning the "City Fathers" for four years for financial support in its efforts to control the spread of consumption, has won a victory. The Board of Estimate and Apportionment has added to the health department budget for 1898 the sum of $60,000 for the management of the tuberculous sick under the supervision of the department. In the argument for this allowance, or fund, it was alleged that one in seven of the deaths of the city was caused by tuberculosis, and that in some tenement districts the rate was one in four; that many hospitals would not receive such cases, and that the hospitals that received them sought to get rid of them as soon as possible. The Seton Hospital at Fordham Heights, which was built especially for consumptives, would receive patients at the rate of $1 a day. Dr. Biggs, the health department bacteriologist and persistent warrior against the white plague, is reported to have stated that it was the purpose of the department to take charge of such patients as could not pay for treatment. He added that there was no longer any doubt that the disease could be stamped out if it could be properly treated and isolated.

Hygiene for Tourists in France.—Dr. G. Morice of Paris, has written a little book on the above subject. He points out the needs of travelers both on the train and at the hotel or auberge, emphasizing cleanliness as the great desideratum. But most important of all, the latrine accommodation should be above reproach. At present the filthiness of hotel privies in France is for the most part excessive. So much so, indeed, that in their Revue the Touring-Club have commenced what they call "La Croisade des W. C." "First nation in the world for touring, roads, and climate," says Dr. Morice in conclusion, "we are not yet within measurable distance of the English, the Americans, or even the Swiss, as regards ordinary comforts in our retiring closets. Then put your shoulders to the wheel, French landlords, and by paying a little attention to hygiene enable your 'Golden Lions' and your 'White Horses' to at length earn the respect of their patrons." According to an anonymous writer on the same subject the people who expectorate promiscuously in railway carriages, omnibuses, etc., are the chief offenders against decency and sanitation. Until women are allowed to dispense with skirts and appear uncriticised in rational costume, says this bold hygienist, they must, when making use of public vehicles continue exposed to the risk of soiling their petticoats with most offensive and dangerous filth. On a journey, women, he says, are generally encumbered with babies and parcels, and it thus becomes impossible for them to attend properly to their drapery when about to take their seats.

The Annual Report of the Chicago Health Department.—In the annual report for the year 1894, a table of the populations, total reported deaths and the death rates per 1,000 of population of all cities in the United States claiming to have population of more than 200,000 inhabitants showed Chicago to have the lowest rate. For the year just closed a similar table is given with the rates for 1894 appended for comparison:

	Claimed Population July 1, 1897.	Death Rate per 1000.	
		1897.	1894.
New York	1,990,881	19.5	21.0
Chicago	1,619,226	13.5	15.2
Philadelphia . . .	1,214,256	18.8	18.3
Brooklyn	1,140,000	18.2	20.1
St. Louis	600,000	15.9	16.1
Boston	576,305	21.5	22.9
Baltimore	506,398	18.5	19.1
Cincinnati . . .	500,000	14.3	18.3
San Francisco . .	360,000	17.1	18.8
Buffalo	360,000	12.5	16.7
Cleveland	350,000	14.2	15.8
Pittsburg	287,500	16.5	18.2
Washington	278,000	19.8	20.2
Detroit	275,000	15.0	15.5
Milwaukee	275,000	13.1	15.7
New Orleans . . .	270,000	25.3	24.9

This is a most satisfactory showing of generally improved public health throughout the country during the past three years—Philadelphia and New Orleans only showing no reduction of mortality. The rate of Chicago, 13.46 per cent. per 1000 is the lowest mortality rate ever recorded, so far as is known, for any city of more than 500,000 inhabitants, either in this country or in any other.

The principal reduction, and the one most gratifying is that in the deaths of infants and young children—fewer by 12 per cent. among the former, and by 12.5 per cent. among the latter, than during the previous year. Since there was nothing in the condition of the weather to account for this, it is only fair to attribute this saving of infant and child life chiefly to steadily improving sanitary conditions.

The result of this growing improvement is also seen in the marked diminution of deaths from the preventable diseases generally—diphtheria, typhoid fever, consumption, etc. The sanitary quality of the water-supply has averaged distinctly better than in 1896. To this better quality is largely due the reduction in the mortality from typhoid fever and the other impure water diseases. Some share of this reduction is undoubtedly due to the increasing care exercised by the public in the use of the hydrant water when it is found to be polluted. The daily laboratory examinations and the warnings based thereon are known to cause many persons to resort to boiling, or some other means of purification when the water is announced by the daily press to be "suspicious" or "bad." Fewer deaths from diphtheria have occurred during the year than in any other since 1884. Antitoxin in the treatment of diphtheria is probably used more freely and successfully by Chicago physicians than by any similar body of the medical profession elsewhere in the world. To their general, prompt and scientific employment of the remedy is to be ascribed the wonderful reduction in diphtheria mortality from an average of 35 per cent. prior to its introduction to 6.6 per cent. in nearly 4,000 cases coming under the direct observation of the Department. The inception of the antitoxin treatment of diphtheria by the Chicago Department of Health dates from the importation by the Commissioner in the fall of 1893 of 100 vials of the Behring serum. The remedy is now made available to physicians at a greatly reduced price and the Department further supplements their labors in the treatment of diphtheria by maintaining upward of a hundred antitoxin stations throughout the city for sub-laboratories for prompt bacteriologic diagnosis, and a corps of experts for assistance in various ways. In the laboratory 26,028 chemic and 3,919 bacteriologic examinations were made. Out of upward of 23,000 samples of milk and cream collected by the inspectors and analyzed in the laboratory, only 1,080 or 4.7 per cent. were found below grade. Through the inspections of the sources of the city's ice supply, including analysis of the waters of the ice fields, and the strict control of the disposition of impure ice made practicable under the permit system, there has been a great improvement in the quality of ice furnished for domestic use, and it is now almost impossible to deliver impure ice for domestic use without prompt detection. The Department meat inspectors have condemned approximately 2,000,000 pounds of meat as unfit for food, and supervised its destruction. Inspection of groceries and general food supplies has become a regular part of the laboratory work. The list now includes almost every variety of food products. Total mortality and mortality from principal causes during 1897 (compared with 1896): Total for 1897: All causes, 21,809; deaths under 1 year, 5,735; deaths from 1 to 5 years, 2,811; diseases of nervous system, 2,787; consumption, 2,180; pneumonia, 2,152; acute intestinal diseases, 1,386; violence, 1,410; diseases of the heart, 1,365; infantile diarrhea, 1,085; bronchitis, 1,026; diphtheria, 702; nephritis, 937; typhoid fever, 437; cancer, 773; other zymotic diseases, 542; other tuberculous diseases, 394; croup, 72; scarlet fever, 81. Total for 1896: All causes, 23,257; deaths under 1 year, 6,512; deaths from 1 to 5 years, 3,201; diseases of nervous system, 3,018; consumption, 2,310; pneumonia, 2,141; acute intestinal diseases, 1,859; violence, 1,362; diseases of the heart, 1,231; infantile diarrhea, 1,202; bronchitis, 1,165; diphtheria, 956; nephritis, 818; typhoid fever, 751; cancer, 734; other zymotic diseases, 517; other tuberculous diseases, 357; croup, 142; scarlet fever, 54.

ASSOCIATION NEWS.

The Senn Medal.—Those members of the AMERICAN MEDICAL ASSOCIATION intending to compete for the medal offered by Dr. Senn for the best essay on some surgical subject, are requested to forward the type-written copies of contributions before March 1, 1898. Address,

J. McFADDEN GASTON, M.D., Chairman, Atlanta, Ga.

SOCIETY NEWS.

The Medical Society of the State of New York will hold its ninety-second annual meeting in the City Hall, Albany, N. Y., January 25, 26 and 27. The provisional program presents titles of thirty-nine papers.

Iowa State Medical Society.—The forty-seventh annual meeting of the Iowa State Medical Society will be held in Des Moines, Iowa, May 18, 19 and 20. The president is Dr. Edward Hornibrook of Cherokee; the secretary, Dr. James W. Cokenower of Des Moines.

Obstetrical Society of Cincinnati.—The Society, at its annual election, chose the following officers: President, E. S. McKee; vice-president, W. D. Porter; recording secretary, Wm. Gillespie; corresponding secretary, M. A. Tate; treasurer, Geo. E. Jones; librarian, Dr. Bonnifield.

Milwaukee Medical Society.—At the annual meeting of the Milwaukee Medical Society, recently held, the following officers were elected for the ensuing year: President, F. E. Walbridge; first vice-president, A. I. Comfort; second vice-president, John Madden; secretary, Gilbert E. Seaman; treasurer, U. O. B. Wingate; librarian, Louis F. Frank; curator, Arthur J. Patek.

MISCELLANY.

Action of Saliva on Bacteria.—Triolo states that filtered saliva has no bactericidal power, but that fresh sterile saliva will kill all the germs of staphyl. aureus, the bacteria of the air, of diphtheria, typhus, etc., in five day cultures, and greatly reduce their numbers in eighteen hour cultures.—*Gaz. d. Osp. e. d. Clin.*, December 12.

Anti-depopulation Measures.—A project has been presented to the French legislature that girl-mothers convicted of infanticide should be sent to some specially created colony and "condemned to one, two or three years according to the degree of criminality." His Excellency the Minister of the Interior is said to have taken the matter under advisement.

New Hints for Radiography.—Marcus states that iodoform, vaselin and iodoformed ether introduced into deep cold abscesses, form a mixture with the contents of the abscess impermeable to the Roentgen ray. Also that insufflation of air into hollow organs renders them perfectly transparent to the ray, which fact can be utilized in obtaining information in regard to the stomach, or the intestines insufflated from below, as they leave a blank space on the plate.—*Presse Méd.*, November 27.

Wanted.—We desire to secure a copy of No. 8, Vol. 21, of the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION for completion of above volume for a State Board of Health Library. Any of our readers having a duplicate of this number will confer a favor by returning same to this office and we will remit charges on same.

Necropsy of a Case of Pure Verbal Deafness.—For four years the patient's only symptoms were the typic verbal deafness (inability to understand spoken words or to write from dictation), progressing then into sensory aphasia and death four years later. A double and symmetric poly-encephalitis was discovered in the temporal lobes, reduced one-half in size, diminishing in intensity from above downward and from the front backward. This was the only lesion and is the only case on record in which the lesion was purely cellular.—*Semaine Méd.*, December 22.

Nature of the Alterations in the Spinal Cord in Tabes.—Darkschewitch considers that the present status of our knowledge conflicts with the assumption that tabes is due to a primary affection of the cord. He attributes it to a preceding affection of the peripheral nervous system of apparently varying character and varying localization. The alterations in the posterior column appears as the consequence of at least two morbid processes, a polyneuritis and a pachymeningitis in the ramification region of the art. spin. post. The affection of the lateral ventricles is apparently only the result of a polyneuritis.—Moscow Congress, *Wien. klin. Rundschau*, December 12.

Live Frogs as an Antithermic.—An English practitioner of Constanta, Roumania, writes: On the evening of October 19, I was called to visit a Roumanian boy, 6 years old, suffering from typhoid fever. I found him *in extremis*, almost pulseless. The child's head was completely wrapped over with a large white sheet, and as I looked at it this enormous white envelope seemed to be on the move and while I was surveying this covering there crept from under it a small frog, which quietly sat over the child's left arm. It seemed quite content. I immediately called the mother's attention to it and requested her to take the animal away, thinking it had crept there as an intruder. "Oh, no!" said the old lady, "a doctor recommended that a lot of them should be kept to the head to keep it cool." Seeing the head covering still on the move, I raised it for curiosity, and in a second out jumped about twenty other frogs and hopped away in all directions. I have often heard the expression "as cold as a frog," but this was the first time I had seen a frog applied as a head-cooler.—London *Lancet*.

The Address in Surgery Before the British Medical Association.—According to an editorial writer in the *British Medical Journal*, the recent presidential address of Mr. Mitchell Banks has fallen in divers errors about Ambroise Paré, errors that have been exploited beyond repair. That writer says, "Mr. Banks, will need to reconstruct his account of Paré. For all that Malgaigne says about it, the date of Paré's birth was 1509 or 1510, not 1517; nor did he 'lead an incessantly active life,' in the ordinary sense of the words, for the first few years after he was born. It is not probable that the Verdum story is genuine; there was no battle or siege of Rheims or of La Fère; he went to Dreux the day after the battle; and we do not know that he was at Saint Quentin or at Moncontour, or that he attended Charles IX. in his last illness. He did not write to his wife for ransom after the fall of Hesdin; it was M. Goguier who wrote. He did not 'invent the ligature,' and never said that he did; he only invented the use of it in amputations; and he did not take for his motto that favorite saying of his *Je le pansay, Dieu le guarist*; the motto he chose for his own portrait in his books was *Labor improbus omnia vincit*."

The General and Special Hospitals of London.—A statistical statement issued by the Hospital Reform Association shows that in London the general hospitals have 5,349 beds, the special hospitals 3,475, and cottage hospitals 299, making a total of 9,123. The in-patients treated in one year were 62,774 in the general hospitals and 27,701 in the special. In the same year the general hospitals treated 897,389 out-patients and the special 439,338. Among the general hospitals the largest number of in-patients appertains to the London, where they amounted to 10,559; at St. Bartholomew's they were 7,290, at Guy's 6,336, and at St. Thomas' 5,493. St. Bartholomew's appears with the largest number of out-patients, 161,419. The special hospitals include five for diseases of the eye. For diseases of the throat, ear and nose there are six hospitals. There are five hospitals for diseases of the skin, six hospitals for diseases of the chest. The Hospital for Consumption has 320 beds and treated 1,851 in-patients during the year, the out-patients being 13,750. There are three orthopedic hospitals. For incurable diseases there are twelve institutions, having 611 beds, while the in-patients were 839, no out-patients being attended by these institutions. Hospitals for diseases of the nervous system are three in number. There are six hospitals for diseases of women and eleven for diseases of children. There are also six lying-in hospitals and the hospital for cancer. Concerning the latter, the Middlesex Hospital has thirty-five beds set apart for the treatment of cancer, the patients being allowed to remain until they die.

The Toxin of the Gonococcus.—The *Annales de l'Institut Pasteur* for August, 1897, contain the results of an interesting series of experiments with the toxin of the gonococcus. It produces local and general phenomena, injected experimentally, with pronounced phlogogenic properties if injected into the eye or the pleura of the rabbit, while no effect follows its application on the mucous membrane of the conjunctiva or urethra. On the other hand, it produces in man a decided reaction in the urethra, transient but acute while it lasts. The urethra is not immunized by the process, as the same experience was repeated five times in succession. This reaction of the human urethra is special to the gonococcus toxin. Other toxins tested failed to produce any such result. Certain facts indicate that the toxin is located in the body of the coccus and liberated as it dies. It will stand heat to 70 degrees C., and is precipitated by alcohol. Attempts at immunization were successful with rabbits and goats. The serum of goats injected with increasing amounts of the toxin during the course of a year, rendered rabbits immune to the phlogogenic action of the toxin, which can then be injected into the eye and pleura without reaction. These facts have not yet been applied to therapeutics, but de Christmas hopes to obtain in time a serum powerful enough to arrest the progress of local gonorrhea and affect favorably the general phenomena caused by its toxin.—*Presse Méd.*, November 27.

Temporary Gastrostomy for Cicatricial Stricture of Esophagus.—Villard, in reporting a case of the above character, expresses the opinion that we must not consider gastrostomy as a definitive procedure, but rather as a temporary measure, to give the operator time to adapt his means to his case, and to give rest to the esophagus, thereby suppressing the spasmodic and inflammatory condition of that organ and allowing the surgeon to resume the necessarily suspended catheterization. The following observation confirms these views: A woman, aged 45 years, had a cicatricial stricture for the past four years, due to ingestion of sulphuric acid. Regularly catheterized, this woman was fed through the esophagus until June, 1897, when, from unskilful catheterization, deglutition even of liquids became impossible. This woman, after ten days of absolute diet, was in a very bad general condition, weighing only thirty-nine kilograms—about seventy-eight pounds. Villard then performed gastrostomy in two sittings, and for nine days the patient was fed through the stomach. Esophageal catheterization then became again possible, as well as deglutition of liquids. From this on, regular dilatation of the esophagus was performed. Two months after, an operation was done to obliterate gastric fistula; autoplasty with three planes of suture; an insignificant fistulette, persisting for some time; complete cure in November; the patient had then gained eleven kilograms. At present she is fed by the mouth regularly and catheterized from time to time, so as to maintain the caliber of the esophagus. This is not, however, a unique case. In a report by Lefort, comprising sixteen patients, thirteen recovered, with a permeable esophagus after gastrostomy; and in one case of Jabouley of Lyons, gastrostomy performed almost *in extremis* enabled esophageal catheterization twenty days after, with a complete subsequent cure.—*Lyon Médical.*

Medico-Literary Notes.—A governmental report by Sir Richard Thorne, M.D., and Dr. Copeman, on the new preparations of bovine lymph, has been issued by the Local Government Board.

A Linnæus wanted in chemistry—Some change must soon be made in chemic nomenclature or a large portion of a lecture on chemistry will be occupied in articulating the name of the subject which it is proposed to discuss. In a late number of the Comptes Rendus, MM. A. Haller and A. Guyot describe a new substance they have obtained which has the portentous title of the "tétramethyldiamidodiphenyldianthranoltetramethylédiamidé symmetrical with the correspondent oxanthranol." This, we think, would be hard to beat even amongst German sesquipedalian words. The chemists want a Linnæus.

Hirschwald's Medical Directory for 1898.—According to the directory the number of medical men in the German empire is 24,393, of whom 14,582 practice in Prussia, 2,612 in Bavaria, 1,785 in Saxony, 977 in Baden, 826 in Wurtemberg, 702 in Alsace-Lorraine. Of the large towns Berlin has 2,148 medical men, Munich 510, Hamburg 496, Breslau 432, Leipzig 379, Dresden 360, Frankfort 288, and Hanover 218. Of the members of the profession residing in Berlin one qualified in 1830, one in 1841, two in 1842, two in 1843, and four in 1844, of whom Professor Virchow is one. The proportion of medical men to the population is 463 per 10,000 throughout the whole empire and 12.81 in Berlin.

"*The Scholar in Medicine.*"—Dr. George Foy, of Dublin, has made a partial list, as he terms it, of the eminent names of medico-literary men who were natives of the British Isles: John Arbuthnot, author of "Scribilerius;" Wm. Barrington of Coleraine, founder of the Geological Society; Thomas Beddoes, the linguist; John Bell, whose work on Italy justifies his inclusion; J. Berkenhout of Leeds, author of the "Outlines of the Natural History of Great Britain and Ireland;" Wm. Black of Belfast, author of the "Geyser and Rikam Springs in Iceland;" George Cheyne, author of "Physiological Principles of Natural Religion;" Erasmus Darwin, author of the "Phylologia;" Samuel Garth, translator of Ovid's "Metamorphoses;" Francis Glisson, the Aristotelian scholar; Samuel Gmelin, the scientist; Oliver Goldsmith, (?) the poet; John Gerarde, the traveler and botanist; John Mason Good, the translator of "Lucretius;" William Musgrave, the antiquarian; Mungo Park, the African explorer; Thomas Percival, founder of the Manchester Philosophical Society; Sir Wm. Petty, author of the "Political Anatomy of Ireland;" Archibald Pitcairne, the mathematician; John Radcliffe, founder of the Radcliffe Library; Sir William Wilde, author of the "Valley of the Boyne;" William Withering, the mineralogist; John Wolcott, the satirist; William Woodville, author of the "Medical Botany;" Robert William, the antiquarian. Will not some of our readers undertake to compile a similar list for this Western world?

Arthurian Medicine.—Dr. G. M. Gould and W. L. Pyle have collaborated, for the Johns Hopkins Hospital Historical Club, a sketch of the medicine and surgery of King Arthur's time and of how the Knights of the Round Table fared after their many warrings and woundings. There is no mention in the Arthurian writings of a court physician. The sick and wounded were often taken to the nunneries, monasteries and to the abode of some hermit. Salves and ointments were used in the treatment of wounds, and the Sangrail was effective both for wounds and sicknesses. The bath medicated with herbs and phlebotomy were not unknown. Not only the religious inmates of nunneries but the noble women elsewhere undertook the dressing of wounds. The queen "la belle Isoud" was spoken of as "the noble surgeon."

The century birthday of a Scottish medical poet.—January 5, the birthday of Dr. David Macbeth Moir, the medical poet, whose birthplace was Musselburgh, Scotland, was set apart by many literary and scientific men to commemorate the beloved physician of their section, by the founding of a scholarship. Dr. Moir's sonnet on "The Hospice of Saint Bernard" is the writing especially noted as containing the spirit and warmth of a "medical poet." "Delta," as he signed himself in some of his writings, was born in 1798 and died in 1851.

The Pirogoff memorial: Billroth's sentiment.—The museum of anatomy and surgery recently built to the memory of Pirogoff and to be called the Pirogoff Museum was opened in St. Petersburg on Sunday, October 26 (old style). The total funds collected for the memorial were 115,000 roubles and the building has cost 85,000 roubles (about £9,000). The opening ceremony was attended by the Prince and Princess of Oldenburg and a large number of other distinguished guests. It is not generally known that the famous Viennese surgeon Billroth was a great admirer of Pirogoff, but that this was the fact is attested by the interesting sentiment or endorsement, made by the former when presenting his picture to his friend and patient Pirogoff, that runs as follows: "To the honored Master, Nicholas Pirogoff. Truth and clearness in thought and in feeling, as well as in word and deed, are the steps on the ladder which lead men up to a seat with the gods. To follow your guidance, equally courageous and sure, on this path, which is not without its dangers, is my earnest intention. Your sincere admirer and friend, Billroth." In writing to a Russian surgeon regarding the fatal malady of Pirogoff, a palatal neoplasm, he refused to operate or to advise an operation, saying "I am not that bold operator whom you knew years ago in Zurich. Before deciding on the necessity for an operation, I always propose to myself this question, Would you permit such an operation as you intend performing on your patient to be done on yourself? Years and experience bring in their train a certain degree of hesitancy (Zurückhaltung). Every year brings out clearer and clearer the shortcomings of our art."

The last of the Valois and his assassin.—Recently some interesting facts have been made known in regard to the assassination of King Henry of Valois, at St. Cloud, Aug. 1, 1589. It would appear that the king was slain by a man who was, like himself, intensely neurotic. Henry III. is one of the best known historic bad characters. His face was small and unsymmetric; his tastes varied between violent exercise in the worst weather and the effeminate coddling of himself in midsummer. Abject superstition made him walk barefoot at the head of a procession, and a few days later he would delight in swearing complicated oaths with intent to insure his final reprobation. He rouged his face, and wore kid gloves in bed to keep his hands white, and was subject to the worst perversions of instinct. But Jacques Clement, his assassin, was also, it would appear, a being who lived on the borderland of crime and insanity. The religious monomania, undeniably the immediate cause of the crime, followed a life of license alternated with extreme mortification of the flesh. It was said at the time that a court ecclesiastic had hocussed him to cause him to dream, and to fancy that he heard voices. The truth is that his mind, weakened by vice and bigotry, was thoroughly unhinged by the horrors of the religious wars of his time, and he sincerely believed that heaven had ordered him to slay a man who, both from a medical and a moral point of view, was his perfect counterpart. Acting on that belief Clement made history by extinguishing the line of the Valois. —*British Medical Journal.*

Washington.

MEDICAL SOCIETY ELECTION.—At the annual meeting of the Medical Society recently held, the election of officers resulted as follows: President, Dr. Samuel C. Busey; vice-presidents, Drs. Charles W. Richardson and G. M. Kober; corresponding secretary, Dr. Thomas C. Smith; recording secretary, Dr. Samuel C. Adams; treasurer, Dr. C. W. Franzoni; librarian, E. L. Morgan; censors, Drs. C. W. Richardson, Winter, French, Kleinschmidt and Acker. Dr. Busey was president of the Society some years ago, and this election gives him the office for the sixth term, five of which have been consecutive. Dr. Franzoni was re-elected to serve his twenty-sixth term as treasurer, and Dr. Adams was re-elected to serve a ninth term as recording secretary. At this, one of the largest attended meetings in the history of the Society, the almost unanimous election of these officers is a fitting testimonial of their fidelity to duty and the recognition of their valuable services. Dr. Robbins read a paper entitled "Dangers of the Barber Shop;" Dr. Snyder, "Abscess of Gall-bladder with Typhoid Ulcers;" and Dr. J. Taber Johnson reported two cases of hysterectomy, with specimens.

WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.—The 273d meeting of the Society was held at the residence of Dr. Bromwell, at which Dr. W. S. Bowen read a valuable paper on "Ventral Hernia."

CENTRAL DISPENSARY AND EMERGENCY HOSPITAL.—At the recent meeting of the directors of the hospital, the following report for the month of December was read: New cases, 726; total number of visits, 2,174; number of deaths, 1; number of operations, 155; ward patients, 37; number of prescriptions, 2,351; ambulance calls, 45. The directors decided to have the annual donation day February 16, at which time donations of money, clothing, medical supplies and instruments will be gratefully received. The list of donations and donors will appear in the public press.

CHANGE OF ADDRESS.

Baker, L. H., from Oak Park, Ill., to Fitzgerald, Ga.

Capp, W. M., from 2211 Spruce Street to 123 N. 11th Street, Philadelphia.

Eichberg, L. R., from 211 E. 62d Street, to 225 W. 106th Street, New York.

Formaneck, F., from 251 Ogden Avenue, to 803 Warren Avenue, Chicago; Fite, C. C., from 102 W. 93d Street to 1 Madison Square, New York, N. Y.; Frank, C. P., from 77 E. High Street to 167 E. High Street, Detroit, Mich.

Hoffman, F. N. A., from Evanston to Stewardson, Ill.

McDaniel, E. D., from Camden to Coy, Ala.; Motter, M. G., from 30th and U Streets, N. W. to 2114 Connecticut Avenue, N. W. Washington, D. C.

Nahensky, H., from 165 Hudson Avenue to 28 Erving Place, Chicago; Nolder, S. M., from Fairmount, Ind., to 500½ Main Street, Newton, Kas.

Proctor, C. M., from Helene to White Selphur Springs, Mont.

Stewart, H. J., from 105 S. Campbell Avenue to 2118 W. Lake Street, Chicago.

Thomas, C. H., from Philadelphia, Pa., to Dansville, N. Y.; Tomlin, W. S., from North and Illinois to 48 W. North Street, Indianapolis, Ind.

Van Hood, E., from Ocala, Fla., to 214 E. 34th Street, New York City.

LETTERS RECEIVED.

Allport, Frank, Chicago, Ill.; Allen, J. B., Cambridge City, Ind.; American Sports Publishing Co., New York, N. Y.

Bleazley, L. F., Detroit, Mich.; Baker, L. H., Oak Park, Ill.; Bowcock, C. M., Springfield, Ill.; Busey, S. C., Washington, D. C.; Blaine, J. M., Denver, Colo.; Bishop, Alfred & Sons, Limited, London, Eng.; Bogie, M. A., Kansas City, Mo.; Buttermiller, J. C., Cincinnati, Ohio.

Coughlin, John H., (2) New York, N. Y.; Cleaves, Margaret A., New York, N. Y.; Conner, Robt. E., Hickory, Pa.; Carstens, J. H., Detroit, Mich.; Cotrell, D. D., North Cohocton, N. Y.; Campbell, R. D., Grand Forks, N. D.

Divine, Chas. A., Mt. Vernon, N. Y.; Dower, T. J., Livermore, Ia.; Dutton, C. E., Minneapolis, Minn.; Davis, O. P., Topeka, Kas.

Ensign, W. O., Rutland, Ill.; Edwards, Wm. M., Kalamazoo, Mich.

Fite, C. C. New York, N. Y.; Fox, L. Webster, Philadelphia, Pa.; Fries Brothers, New York, N. Y.; Fischer Chemical Importing Co., New York, N. Y.; Fougera, E. & Co., New York, N. Y.

Guillaudan, W. L., New York, N. Y.; Gustin, Mackie L. V., Attleboro, Mass.; Gay, B. F., Pierce, Neb.; Galloway, D. H., Chicago, Ill.

Horlick's Food Co., Racine, Wis.; Hall & Ruckel, New York, N. Y.; Haubold, H. A., New York, N. Y.; Hummel, A. L., Advertising Agency, New York, N. Y.; Holmes, Bayard, Chicago, Ill.; Huff, S. M., Lamar, Pa.; Harriman, W. E., Ames, Iowa; Hardy, Neal, Massillon, Ohio.

Ingals, E. Fletcher, Chicago, Ill.

Jayne, W. A., Denver, Colo.; Jeffers, G. D., Cunningham, Kas.; Jones, Hamilton, P., New Orleans, La.; Justice, J. D., Quincy, Ill.

King, A. D., Des Moines, Iowa.

Lehn & Fink, New York, N. Y.; Library of Congress, Washington, D. C.; Larned, E. R., Joliet, Ill.; Lambert, Wm. (2), Kansas City, Kas.

Marchaud, P. A., Cincinnati, Ohio; Maker, L. E., Sac City, Iowa; Motter, M. G., Washington, D. C.; Molder, S. M., Fairmount, Ind.; Malcolm, J. W., Wynnewood, I. T.; McArthur, J. H., East Barre, Vt.; McNeel, H. W., Mill Point, W. Va.; Macdonald, W. H., Lake Geneva, Wis.

Newell & Heldman, Chicago, Ill.

Oelrichs & Co., New York, N. Y.

Parrish, J. C., Vandalia, Mo.; Pope, Curran, Louisville, Ky.; Porter, G. H., Steamboat Rock, Iowa; Plummer, H., Harrodsburg, Ky.; Pancoast, J. W., Philadelphia, Pa.; Paul Paquin Laboratories, (2) St. Louis, Mo.; Parke Davis & Co., Derroit, Mich.

Ryan, Charles, Springfield, Ill.; Root, H. A., Toledo, Ohio; Reed R. H., Asheville, N. C.

Sternberg Geo., Washington, D. C.; Sewanee Medical College, Sewanee, Tenn.; Scheel, E. E., Bloomington, Ill.; Schultz, E. F., Milwaukee, Wis.; Stanton, Dr. Grand Rapids, Mich.; Shoemaker, John V., Philadelphia, Pa.; Smith, M. M., Cedar Chapel, Tenn.; Smith, Gould, Taylorville, Ill.; Schick, G., Los Angeles, Cal.; Sanborn, E. A., Somerville, Kas.; Smith, D. D., New Richland, Minn.; Stearns & Co., Detroit, Mich.

Thorp, C., Denver, Colo.; Thorington, J., Philadelphia, Pa.

Wyeth, Jno. & Bro., Philadelphia, Pa.; Weir, S. D., Terre Haute, Ind.; Weidman, W. Murray, Reading, Pa.; White Rock Mineral Spring Co. Waukesha, Wis.; Wall, G. A., Alburquerque, N. M.; Wrey, W. E., Waupun, Wis.

Zeit, F. R., Chicago, Ill.

THE PUBLIC SERVICES.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from January 8 to 14, 1898.

Major Egon A. Koerper, Surgeon (Ft. Crook, Neb.), leave of absence granted is extended two months.

Lieut.-Col. David L. Huntington, Deputy Surgeon-General (Surgeon-General's office, Washington, D. C.), is granted leave of absence from or about Feb. 1 to April 10, 1898.

Capt. Peter R. Egan, Asst. Surgeon, is relieved from duty at Ft. Hamilton, N. Y., and assigned to duty at Ft. Hancock and the Sandy Hook Proving Ground, N. J., with station in New York City, and will make daily visits to and between those points until he shall be furnished with suitable quarters at Ft. Hancock.

Col. Dallas Bache, Asst. Surgeon-General, will be relieved from duty as chief surgeon, Dept. of the Platte, on Jan. 20, 1898, and will repair to Washington, D. C., and report in person to the Surgeon General of the Army, to assume charge of the museum and library division of his office, to enter upon duty April 10, 1898, as professor of military medicine in the Army medical school, to which he is assigned accordingly.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending January 15, 1898.

Medical Director B. H. Kidder, detached from duty with the medical examining board, Washington, January 21, and ordered home on waiting orders.

Medical Director B. H. Kidder, retired January 23.

P. A. Surgeon A. W. Dunbar, detached from the "Vermont" and ordered to the "Nashville" January 15; on arrival of the "Nashville" on the European station ordered to the "San Francisco."

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ORIGINAL ARTICLES.

BACILLUS ICTEROIDES AND BACILLUS X.

BY GEO. M. STERNBERG, M.D., LL.D.
SURGEON-GENERAL U. S. ARMY.
WASHINGTON, D. C.

In order that there may be no misapprehension upon the part of bacteriologists who are now engaged in researches relating to the etiology of yellow fever, I give below a brief extract from a paper which I shall send to the *Centralblatt für Bakteriologie* for publication.

EXTRACT.

As stated in my previous paper, my information relating to Sanarelli's bacillus, when this paper was written, was obtained from a translation in the *British Medical Journal*, of his "Address" given before the University of Montevideo, June 10, 1897. I have since read his paper in the *Annales* of the Pasteur Institut, and upon my return from Europe in September I passed through Paris, and through the courtesy of Dr. Roux obtained a culture of the "bacillus icteroides" which had recently been sent to the Pasteur Institut by Dr. Sanarelli. I now recognize the fact that there are certain cultural differences, some of which have been pointed out by Sanarelli in his paper in that journal. At present bacillus X is non-motile, while Sanarelli's bacillus is actively motile. But in my original cultures, as stated in my published report, bacillus X was motile. The presence of flagella may now be demonstrated by proper staining methods.

In judging of cultural differences now existing, it must be remembered that bacillus X has been cultivated in artificial media for eight years. In the comparative study now being made in the pathologic laboratory of the Army Medical Museum in this city, the peculiar seal-like colonies, to which Sanarelli attaches so much importance, have not been observed in cultures of bacillus X. Again, bacillus X causes gas production in lactose bouillon, while Sanarelli's bacillus does not.

In view of these facts complete identity in biologic characters can not be maintained.

The next question which arises is, whether the bacillus obtained by Sanarelli from yellow fever cadavers in Rio de Janeiro, and by me from yellow fever cadavers in Havana, are varieties of the same species. Comparative experiments are now being made under my direction with a view to determining this question.

In my opinion bacteriologists are often too much inclined to differentiate species upon slight cultural differences, such as the appearance of colonies, ferment action, etc. Sanarelli himself has shown us, in his paper published in the *Annales* of the Pasteur Institut, three varieties of the colon bacillus, which may be distinguished by differences in the colonies formed upon gelatin plates. Every experienced bacteriologist knows that varieties of all the best known species of bacteria exist and that these may differ as to their pathogenic power, the rapidity and character of their growth in various culture media, their power to produce pigment, the production of acid, of gas, etc.

If bacillus X and Sanarelli's bacillus icteroides are not even varieties of the same species, the question will remain whether one, or the other, or neither, is concerned in the etiology of yellow fever.

It is evident that neither has a claim worthy of serious consideration upon any other ground than that which relates to its pathogenic action. Sanarelli's claim is based chiefly upon his inoculation experiments upon the lower animals and upon man, and his results deserve the most careful consideration. Comparative experiments upon dogs, rabbits and guinea pigs are now being made, under my direction, with Sanarelli's bacillus and with my bacillus X. It is my intention to publish full details of these experiments hereafter. At present I must content myself with an account of some preliminary experiments which show that bacillus X has remarkable pathogenic properties when tested upon dogs by Sanarelli's method (injection into a vein). These experiments have been performed in the pathologic laboratory of the Army Medical Museum by Maj. Walter Reed, surgeon U. S. A., in charge, assisted by Dr. James Carroll, hospital steward U. S. A., and the record given below has been made for me by Dr. Reed.

Experiment 13. July 23, 1897, 1:20 P. M. Young dog, No. 327, weight thirteen pounds, inoculated into ear vein with 5 c.c. of a twenty-four hour culture in glucose bouillon of X from blood of rabbit 314. A very active lively animal. At 1:35 P. M. appears very sick, lying down, does not respond to voice. At 2:05 P. M. vomits considerable quantity of partially digested food, followed by fluid stool with tenesmus. At 2:23 P. M. a small brown watery stool. This repeated at short intervals with much tenesmus. At 2:51 P. M. and 3:05 P. M. vomits with much effort a small quantity of grayish frothy fluid mixed with mucus; 3:30 P. M. vomits; 4 P. M. dog lies on its side with extremities rigidly extended. Temperature in rectum 104.1 F.; prior to injection, temperature 101 F. July 24, 9 A. M., temperature 102; refuses food or drink; lies on side with extremities extended; during the day has several thin dark fluid stools containing blood and mucus; 4 P. M. temperature 104; died at 6 P. M., twenty-eight and one-half hours after inoculation.

Autopsy.—Thorax: Thymus gland large, dark red; shows a number of small hemorrhages beneath surface. Mediastinal glands swollen, dark red in color. A small hemorrhage over right auricle, which is distended with blood. Left auricle empty. Right ventricle distended, left contracted. Hemorrhages beneath endocardium in latter. Valves normal. Myocardium, pale red. Numerous hemorrhagic areas beneath pleura over right lung. Both lungs, all lobes congested. Lower lobe right lung edematous. On cut section, reddish fluid exuded freely.

Abdomen: Numerous hemorrhages beneath peritoneal surface of duodenum.

Liver: Of a mottled pale and red color, the light color predominating.

Spleen: Enlarged, dark red, firm.

Kidneys: Enlarged, cortex swollen, pale.

Adrenals: Small, pale.

Stomach: Mucous membrane over greater curvature, of uniform dark red color. No erosions to be seen.

Intestines: Duodenum and upper part of jejunum contains considerable quantity of a fluid black tarry material. Mucous membrane of small intestine pale throughout. Peyer's patches not swollen.

From ileo-cecal valve to anus the longitudinal rugæ of mucous membrane are the seat of marked hemorrhage, which extends into submucosa. Some fluid blood in large intestine.

Bladder: Contracted, containing about 4 c.c. of albuminous urine. Cultures from blood, liver and spleen show numerous colonies of X. Kidney, urine and bile negative.

Microscopic examination of sections shows wide spread necrosis, with fatty degeneration of liver parenchyma and cloudy swelling of renal epithelium.

Experiment 35.—August 6, 1897. Dog No. 347. Weight ten pounds. Injected at 2:45 P. M., with 13 c.c. of a seventy-two hour culture in 2 per cent. lactose bouillon of X from rabbit No. 338. Animal much prostrated by injection; 3:05 P. M. vomits food with much retching; again vomits at 3:15 P. M., followed by watery stool containing mucus. Temperature 4 P. M. 96.4 F.; prior to injection, rectal temperature 101 F. Found dead at 8 o'clock following morning, less than eighteen hours.

Autopsy.—Thorax: Subendocardial hemorrhages in left ventricle. Sub-pleural hemorrhages, upper lobe, right lung. Hemorrhagic infarct lower lobe, same lung.

Abdomen: Liver pale, grayish color.

Spleen: Slightly swollen, dark red, soft.

Kidneys: Deeply congested.

Stomach: Contains about 200 c.c. of fluid blood. Mucous membrane throughout of a dark red color. Both small and large intestines contain much fluid blood. Mucous membrane of small intestine swollen and of a uniform dark raspberry red. Less injection of large intestine, though this is quite marked. Bladder contracted, empty.

Cultures positive from blood, liver, spleen and urine. Negative from bile and kidney.

Microscopic examination of sections of liver show cloudy swelling of cells with congestion of capillaries.

These experiments show that bacillus X injected into the circulation of dogs, produces symptoms and pathologic lesions similar to those produced by equal quantities of a culture of Sanarelli's bacillus. The persistent vomiting, intestinal hemorrhage, albuminous urine (dog 327) and profound changes in the liver cells are certainly very remarkable and give additional weight to the supposition made in my report that "it is possible that this bacillus is concerned in the etiology of yellow fever" (p. 272).

AN IMPROVED METHOD OF DETECTING CASTS IN THE URINE.

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As is well known, two methods are in use for obtaining the sediment from urine for the purpose of microscopic examination. The oldest and most frequently used is by natural subsidence. A quantity of the urine is placed in a cylindric or conical vessel and allowed to stand at rest for twelve or twenty-four hours, or even longer, when the sediment thrown down is removed by a pipette and a drop or more of it examined under the microscope. The other method is by the use of the centrifuge; the urine being placed in suitable tubes and subjected to rapid revolution the sediment is quickly thrown to the outer ends of the tubes, from which it may readily be removed by a pipette and placed under the microscope for examination.

Each of these methods has its advantages and each its disadvantages. The method by subsidence has the advantage of permitting a large amount of urine to be operated on, but it requires much time and the deposit produced, especially in urine from cases of interstitial nephritis, is apt to be very light and occupy a considerable space, so that the microscopic examination of two or three drops of it reveals the character of but a small fraction of the entire sediment, easily permitting casts and other elements to escape detection when they are sparingly present.

In quickness of application and concentration of sediment to a small bulk, easy of exhaustive examination under the microscope, the use of the centrifuge is greatly to be preferred, and on these accounts it has of late years come more and more into general use. It has, however, one serious drawback, particularly in searching for casts when sparingly present, and that is the small amount of urine from which the sediment is obtained. In most centrifuges the tubes for holding the urine are of not more than 15 c.c. capacity, and since in using them they are never completely filled the sediment obtained, even when two of the tubes are used, represents only from 20 to 25 c.c. of the fluid under examination. It is perfectly obvious that in looking, for example, for casts in a case of suspected cirrhosis of the kidney, negative results from comparatively so small an amount of urine would not be of great value; 200 or 300 c.c. of the urine might reveal the presence of casts while 30 c.c. might show none.

During the past two years a combined subsidence and centrifuge method has been devised and put in use by us which leaves little or nothing to be desired for ease and certainty in detecting casts. While of much value in examining for casts in any specimen of urine, it is particularly useful in those many and perplexing doubtful cases in which casts, if present at all, are very sparingly found and which, by either of the usual methods, can be detected, if at all, only after repeated and tedious microscopic examination.

Our method is practiced as follows: About 250 c.c. or more of the urine, as freshly voided as possible, are poured into a glass percolator, such as are used by druggists in making tinctures and fluid extracts. The cylindric or Oldberg form is to be preferred, as the sediment collects more completely at the bottom than when using the conical form. The opening at the bottom of the percolator is closed with a perforated rubber or cork stopper through which passes a piece of glass tubing about 4 centimeters long, and this is connected with a short piece of pure rubber tubing provided with a pinch cock. The entire apparatus, before pouring the urine in, should be washed thoroughly clean and sterilized by the application for a sufficient length of time of a suitable germicidal agent, such as a dilute solution of formaldehyde, followed by washing with recently boiled water. After pouring in the urine a gram or two of chloral hydrate, dissolved in a few cubic centimeters of warm distilled water, are added to retard decomposition; the percolator is now covered with a glass plate and set aside in a cool place for eighteen or twenty-four hours. At the end of this time the sediment of the urine will be found in the bottom of the percolator; if the urine is from a case of suspected interstitial nephritis, for which this method is particularly adapted, the deposit will usually be a light flocculent cloud, and sometimes instead of being at the very bottom of the percolator it will be found floating a few centimeters above it. By opening the pinch cock on the rubber tubing the sediment is drawn off and collected in one or two centrifuging tubes; in all cases the first cubic centimeter or two may be rejected as it contains little or none of the sediment, and in case the deposit, as spoken of above, floats somewhat above the bottom of the percolator, enough of the urine should be slowly drawn off to bring the deposit down to the outlet before collecting in the centrifuge tubes. The latter, which now contain in 20 or 25 c.c. practically all the sediment from the original 250 c.c. or more of urine, are placed in the centrifuge and submitted for a few minutes to about 3,000 revolutions a minute. By this treatment the sediment is condensed to a small deposit at the apex of one or two tubes, from which it is removed by a pipette and examined under the microscope. With suitable care essentially the entire sediment from 250 c.c., or even 500 c c., of urine from the average patient with suspected cirrhosis of the kidney, may by this procedure be reduced to from one to four small drops within which, it is evident, are practically all the casts of the large volume of urine employed. The work of examining this small volume of sediment under the microscope is usually brief. If casts are present in sufficient number to be of clinical significance they are generally found quickly.

If, as just described, the percolator is sterile and sufficient chloral hydrate has been added to the urine, the latter generally undergoes during the 18 to 24 hours of its subsidence only a slight change, and this instead of being a detriment is undoubtedly of considerable advantage for the purpose in view. The change referred to is the coagulation in a very light, flocculent state of a part of the mucin of the urine which in settling out unquestionably collects and carries down with it any casts that may be present, acting very much as the white of an egg does in clarifying or "settling" turbid coffee.

Instead of a percolator, as directed above, a tall glass cylinder or bottle may be used, the sediment being drawn off at the end of 18 to 24 hours by means of a pipette and transferred to centrifuging tubes. A percolator, however, or some other similar device is considerably to be preferred, the deposit from the urine being much more perfectly collected and easily drawn off in its entirety than by the other method.

If we wish to stain the casts or other sediment the appropriate dye may be added to the liquid in the centrifuge tubes before centrifuging, and in a like manner chemical reagents, such as acetic acid to clear up phosphates, may sometimes be used to advantage.

To the conscientious physician who has not infrequently devoted many long sittings to examining under the microscope, often with negative or questionable results, the sediment (whether obtained by gravity or centrifuging) from repeated samples of urine from a patient suspected of having incipient cirrhosis of the kidney, the method just described will be, if our experience is any criterion, a most welcome change. It is true that eighteen to twenty-four hours must elapse after receiving the urine before results may be obtained; but these hours involve no labor and when, at their close, the drop or two of ultimate sediment are placed under the microscope their examination in the great majority of cases may be made with at least comparative ease and rapidity, and with a confidence in the results, even if they are negative, that is in very gratifying contrast to the uncertainty often following the previous laborious methods.

The following test shows the superior ease and accuracy of this method of detecting casts. A sample of urine was secured that was known to contain a very few casts; it was divided into three parts, one of which was submitted to the centrifugal, another to the gravity, and the third to the present described combined process. Although the sediment obtained in the centrifuge was examined with exhaustive care no casts were found; an equally painstaking examination of the gravity deposit revealed a single cast; with the combined process, however, four or five casts were easily found in the first slide placed under the microscope and with an expenditure of time not one quarter as great as that given to either of the other two examinations.

We give only one of the several cases that have recently come under our observation illustrating the clinical value of this method of searching for casts.

Mr. X., 58 years of age, robust physique, a gentleman of means, and assiduously engaged in many commercial enterprises; a good liver, but temperate in the use of tobacco and alcohol; has never had any very serious sickness; family history good, although one and possibly two brothers are believed to have died with Bright's disease. He has had many persistent neuralgic attacks in different parts of his body and has suffered from frequent backache. There is slight enlargement of the left ventricle with moderate increase in arterial tension. The urine is of light color, averages 1,500 c. c., specific gravity about 1,017, slight increase of total acidity; upon standing, only a little light sediment is as a rule thrown down. For two or three years both he and his family physician have feared some organic kidney trouble and as a consequence he has consulted a number of doctors making more or less of a specialty of these disorders. They have all examined his urine and he has preserved their written reports. All have found minute traces of albumin at times, but only one has been able to find casts, and he after long and repeated search had discovered only two. The various physicians differed in their diagnoses, most of them, however, believing that, in the entire absence of casts, organic kidney trouble did not exist, or at least could not be demonstrated. During the past few months the gentleman has been repeatedly under our observation. His urine has been examined microscopically by us several times, using both the gravity and centrifugal methods of getting the sediment, with negative results except on one occasion when by the use of the centrifuge a single hyaline cast was discovered. Upon applying the present combined method, however, we have never failed to find, even with only a moderate amount of search, from two to five casts and sometimes even more. This in conjunction with the other features presented by the case makes the diagnosis certain.

It is evident that this method, while designed especially for detecting casts, may be used with great advantage in examining for any other sediment in the urine, and we have not infrequently employed it in searching for spermatozoa, epithelial cells, micro-organisms, etc., especially when these elements were sparingly present.

In conclusion we should say that, singular as it may seem, the chief defect for clinical purposes in the present method is possibly its too great delicacy. By its use we have found that if sufficient time and care be given to the microscopic examination casts may be found in the majority of samples of urine even from persons in perfect health. Our observations on this important subject are not yet quite complete, but before long we shall publish our results.

A NEW AND SIMPLE METHOD OF OBTAINING THE URINE SEPARATELY FROM THE TWO KIDNEYS IN EITHER SEX.

Read before the Chicago Medical Society, Jan. 12, 1897.

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Owing to the vital importance of the renal function the desirability of being able to determine the presence or absence of a kidney, as well as its functional capacity, has long been recognized by every surgeon who has been called upon to remove one of these organs for some incurable disease. It is a well-known fact that, owing to an error or arrest of development, an individual may be possessed of but a single kidney, or one of the kidneys may be so atrophied or misformed as to possess but little, if any, functional activity. It has more than once been found at the autopsy that the kidney removed by the surgeon was the only one possessed by the patient.

While absence of a kidney is quite rare, being found in only one out of about thirty-three hundred cases (Morris) or 0.03 per cent., still where but a single kidney exists, it is much more liable to become diseased.

In De Jong's (quoted by Wagner, *Deutsch. Zeit. f. Chir.*, 24, 581) collection of 197 cases of nephrectomy with 81 deaths, in 2, or nearly 2.5 per cent. of the 81 deaths, the other kidney was found to be absent, while in 9 it was so atrophied or diseased as to be practically functionless. Thus in 11, or 13.5 per cent., death could have been avoided, or at least not directly charged to the surgical operation, could the condition of the opposite kidney have been determined beforehand. Much thought and ingenuity has been expended in devising ways and means for determining the presence or absence of a kidney. It is quite universally acknowledged that physical examination by palpation, percussion, etc., is absolutely unreliable under ordinary circumstances in determining the presence of a normal kidney, normally located. Hence, attention was early directed in the line of securing the urine separately from the two kidneys. Could this be done with certainty it would not only establish absolutely the presence of two kidneys (except in a few rare anomalies of development), but would be of very great service from a diagnostic point. Even when it is quite certain that the kidney is diseased it is often impossible to determine from the symptoms and a physical examination which kidney is at fault. To be able to collect the urine separately from the kidneys is thus of inestimable diagnostic value.

It is unnecessary to describe in detail the various methods and appliances that have been devised to accomplish this object, still in presenting anything which is claimed as new and original it is well to mention what has preceded in the same line.

We may mention first Simon's suggestion of compressing the ureter at the brim of the pelvis with the hand introduced into the rectum. On account of the great difficulty and danger of introducing the whole hand into the rectum, it was substituted by Davy's rectal lever as in compressing the common iliac artery to control hemorrage. Following this appeared numerous forceps or compressors for shutting off or closing one ureter temporarily while urine escaped from the opposite one. To this class belongs Tuchman's forceps, shaped like a lithotrite. With it one was supposed to be able to feel the ureteral orifice in the bladder and compress it in the jaws of the forceps.

Ebermann's forceps for compressing the ureter with one blade in the bladder and the other in the rectum. Polk's S-shaped catheter for compressing the ureter against the finger in the rectum. Müller's curved spring pad introduced into the rectum. Silbermann's rubber bag introduced into the bladder and filled with mercury so as to compress the ureter on one side.

Some of these compression instruments were visionary, while all of them were so unreliable as to be of no practical value. Next we may mention Hegar's and Sänger's method of cutting down upon the ureter in the anterior vaginal fornix and temporarily compressing it with a ligature, and Warkalla's "umsteckungs" method.

Attention was now directed to the ureteral openings and Pawlick with a delicacy of touch and manipulation that has not been equaled by anyone else, has repeatedly been able to catheterize the ureters of the female through the urethra by touch alone.

Fenwick devised a curved catheter with a large lateral opening, which he hoped to be able to place over the opening of the ureter, and thus by means of a rubber bulb suck the urine directly from the ureter. Considerable light was now thrown upon the subject by the appearance in the field of a number of cystoscopes after the Nitze-Leiter plan by the aid of which the ureters have been successfully catheterized. They are so complicated, however, and require so much practice and dexterity to use them successfully as to be practically beyond the ordinary practitioner.

Simon devised a female urethral speculum through which by means of a reflector or electric headlight the interior of the bladder could be seen as it became distended with air and the ureters thus catheterized by sight. Kelly improved and popularized this method, and following his directions many operators have been able to catheterize the female ureters.

It is however no simple thing, but requires considerable practice, great patience and dexterity, and I have seen those experienced in the method obliged to give up after many minutes of fruitless endeavor. It is likewise at times so painful to the patient as to require an anesthetic, and repeated unsuccessful attempts to enter the ureter may cause a hemorrhage which may seriously interfere with the object in view.

Numerous operators have resorted to suprapubic and perineal cystotomy in the male and vesico-vaginal fistula in the female in order to catheterize the ureters.

Two quite recent methods which do not have in view the catheterization of the ureters deserve mention. Rose (*Centralbl. f. Gyn.*, 1897, Nos. 5 and 21) uses an urethral speculum similar to Simon's and Kelly's, the inner end of which is cut obliquely or on the bias.

The idea is to cover the ureteral opening in the bladder with the end of the speculum so the urine will flow directly into the speculum, from which it can be secured. He admits that this is at times very difficult to do and other methods may have to be tried.

Neumann (*Deutsch. Med. Woch.*, 1897, No. 43) describes a large-sized catheter-like instrument with a septum extending longitudinally throughout its entire length. The septum extends beyond the inner end of the tubes, which open respectively one on either side. When introduced, it is intended the septum should lie snugly against the posterior wall of the bladder, aided by the finger in the vagina, so as to form a water-tight partition and thus guide the urine from each side into the respective side of the catheter. Rose (*Deutsch. Med. Woch.*, 1897. No. 48) criticised Neumann's instrument and showed the unreliability of his method.

Nearly all the preceding devices have been applicable only to the female, the male being practically out of the question.

The great difficulties and unreliability of the methods proposed have led such practical surgeons as Czerny and Israel to establish renal and ureteral fistulæ in the lumbar region in order to decide which organ is the seat of disease, and such men as Thornton, Morris, Fenger and others to perform preliminary ventral celiotomy and bilateral lumbar incisions, in order to permit palpation of the kidneys.

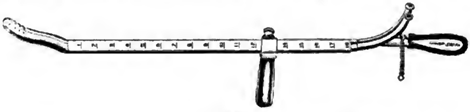

FIGURE 1.

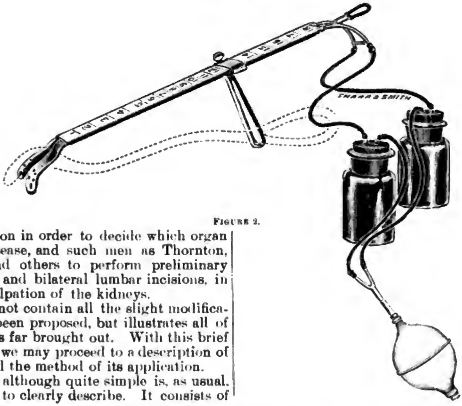

FIGURE 2.

The above does not contain all the slight modifications which have been proposed, but illustrates all of the principles thus far brought out. With this brief introduction then, we may proceed to a description of our own device and the method of its application.

The instrument although quite simple is, as usual, somewhat difficult to clearly describe. It consists of a double catheter, each being separate throughout, but both being enclosed in a common sheath throughout its shaft or straight portion, thus giving it the appearance of a single tube flattened from before backward. Each catheter, however, is separately movable about its longitudinal axis within the sheath. The sheath, or longitudinal straight portion of the catheters, is 20 cm. in length, graduated in centimeters along its upper surface. A detachable handle is attached to the longitudinal portion. The proximal extremity (in reference to the patient) is curved somewhat similar to an ordinary male sound—forming an arc of about 60 degrees of a circle, with a radius of 35 mm.

This curved portion does not pass at once into the straight portion, but is set on a slight forward angular displacement about 3 or 4 mm. in length. Upon transverse section this curved portion is approximately a semicircle, so that when the flattened surface of the two catheters are opposed it is nearly round. Near the end on the flattened surfaces and the lateral portions of the semicircular surfaces are three or four small perforations. The distal extremity of each catheter is round and curved in the same plane as the proximal extremity, forming about the quadrant of a circle, the same as the curved end of an ordinary male sound. (Fig. 1.)

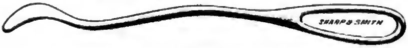

FIGURE 3.

The curves of the two extremities being in the same plane, the distal end will always indicate accurately the exact direction of the proximal end. At about the junction of the distal curved with the straight portion is a short tube, continued in the line of the straight portion and opening into it. The distal extremity of each catheter is connected by means of a short piece of rubber tubing with a separate glass vial. The corks of the vials are doubly perforated. Each vial is finally connected by means of a piece of rubber tubing with a single rubber exhaust bulb. (Fig. 2.) As part of the device there is a metal lever about 25 cm. in length, with a handle at one end, the opposite extremity being suitably curved and flattened laterally. (Fig. 3.)

The instrument is used in the following manner: The patient, male or female, is placed comfortably on a table in the ordinary lithotomy position, with the hips slightly elevated. The instrument, with the flattened surfaces in contact so as to form practically a single catheter, is introduced into the bladder in the ordinary way. So soon as the proximal curved extremity is within the bladder, the proper distance being indicated by the graduated scale, each catheter is rotated about its longitudinal axis until each proximal end, as indicated by the distal end, is directed outward and backward. The end of each catheter should pass through an arch of about 110 to 120 degrees, or so that the angle subtended posteriorly by the two catheters will be about 120 or 140 degrees. They are held in this position by a small spiral spring. The ends of the proximal extremity will now be in the neighborhood of, but not exactly at, the ureteral openings. The ends are separated a greater distance than the distance between the ureteral openings so as to avoid the danger of compressing the opening of the ureter, and thus preventing the escape of the urine. The lever is now introduced into the vagina in the female or rectum in the male. By gentle pressure forward directly in the midline, the base of the bladder is raised into a longitudinal fold between the ureteral openings.

The curve of the lever is such that it fits nicely in the angle formed by the separating extremities of the catheters, thus forming a complete watershed. The end of each catheter now lies at the most dependent part of a little pocket, a perfect watershed separating the two. The ureters open, one on either side of the watershed near the base of the declivity in the immediate vicinity of the respective end of the catheter.

By producing a gentle exhaustion of the air in the vials by means of the bulb, the urine, as fast as it escapes from the ureters, drops directly into the ends of the catheters and flows at once into the vials, right and left respectively.

The instrument and its application are so simple that its advantages are apparent at once, and hence need no arguments to support them.

This being the case, we may proceed at once to dispose of any possible objections that may suggest themselves.

The first question which naturally suggests itself is, is the watershed perfect and complete so that there can be no intermixture of the urine escaping from the opposite ureters? My first experiment was made on the cadaver. A supra-pubic cystotomy was made on a male cadaver, so as to thoroughly expose the interior of the bladder to view. The end of the rubber tube of an ordinary irrigator was inserted into the upper end of one of the ureters. The watershed was now made by the lever introduced into the rectum and the water from the irrigator allowed to slowly flow into the bladder. It would flow at once to the inner end of the catheter on that side without leakage to the opposite side.

Through the kindness of Dr. C. E. Manierre, I had an opportunity of using the instrument on one of his patients, which afforded an absolute demonstration of the completeness of the watershed. It was a female, from whom he had removed the right kidney about a year previous; hence, no urine could possibly enter the bladder except through the left ureter. Although the instrument was used several minutes and considerable urine collected in the left vial, the right vial remained perfectly dry, not a drop of urine appearing in it. We must conclude from this that the septum or watershed is perfect.

The possibility of compressing the opening of the ureter and thus preventing the escape of the urine from that side is obviated, as already mentioned.

In diseased conditions of the vesical mucosa the value of an examination may, upon first thought, appear to be considerably lessened, owing to contamination of the urine with products of vesical origin. Upon reflection, however, this will be found not so. The bladder, when necessary, should be thoroughly cleansed by irrigation before introducing the instrument. After the instrument is in place the little pockets may be again cleansed by irrigating them directly through the little straight tubes on the distal end of the instrument provided for that purpose.

The urine as fast as it escapes from the ureters is sucked at once into the catheters, so that it does not remain in contact with the mucosa. The end of the catheter is so near the opening of the ureter that the urine comes in contact with an extremely small portion of the bladder surface. The examination is not continued long enough at any one time for pus (for instance) to be formed in sufficient quantity to be taken up by the catheter. Hence it will be seen that contamination, even when the bladder is diseased will be slight.

It is likely that in certain greatly enlarged prostates or growths of the so-called middle lobe or in vesical calculi or chronically inflamed and contracted bladders, the instrument would not be applicable, but such cases form a very small minority of those in which its use would be desirable.

A few words in regard to the use of the instrument. The little straight tubes, when not being used for irrigation, must of course be closed air tight by simply tying the little rubber tubes attached to them, or passing the opposite ends of a single tube over each straight end. Aspiration with the bulb should not be too great so as to draw the mucosa into openings of the catheter. Very slight aspiration is all that is necessary. As a few drops of fluid are apt to remain in the bladder even after the use of a catheter, the first few drops that come over should be discarded.

The instrument should be opened carefully when in the bladder, so as not to excite hemorrhage by injuring the mucosa. The proximal curve should be just within the bladder, which is determined by noting the length of the urethra on the scale. Introduce the instrument into the bladder and open it before introducing the lever into the vagina or rectum. The ends of the catheters are easily felt through the vagina or rectum, and the lever should be directly in the midline, midway between the two ends and pressed snugly into the angle. Sufficient pressure should not be used to cause pain, as the watershed is very easily formed. The urine does not drop continually into the vials but intermittingly, just as it escapes from the ureters. The use of the instrument is not painful and does not require an anesthetic, except possibly in an oversensitive or nervous patient, who would not submit to any manipulation whatsoever.

By attention to these simple rules the application of the instrument will be found very simple, and the results all that could be desired.

FEEDING OF SURGICAL PATIENTS.

Presented to the Section on Physiology and Dietetics at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1-4, 1897.

BY ALBERT H. TUTTLE, S.B., M.D.
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Certain special considerations in regard to the feeding of surgical patients have induced me to take up this subject for discussion, that is, the need of definite instruction which will enable the nurse to practically comprehend the requirements of her patient and the simplification of the food materials employed. The subject is naturally divided into three periods, viz.: Before operation; after operation up to the time that the bowels are established, or the immediate effects of the anesthetic are eliminated · and finally the period of convalescence.

The first period is of variable length from a few hours to days or even weeks, depending upon the condition of the patient, the severity of the disease and operation and the necessary amount of preliminary preparation required. During the first period it is the aim of the surgeon to build up the strength and resistance power of his patient and, just before the operation, to prepare the bowels by emptying them as completely as possible. Unless we have been careful about the preliminary treatment it will be difficult to completely clear the bowels without exhausting the strength of the patient, owing to the fact that the bowels are affected by the nervous condition of the patient, which is generally present and perhaps has existed for a long period. In my expeence most female surgical patients suffer from enervation of gastro-intestinal tract, with constipation, mal-assimilation and imperfect nutrition as a result of this weakness of the nervous system. Before a severe operation this should be overcome by toning up the patient as much as possible by overfeeding and tonics. The more severe the operation the more important it is that the bowels should be satisfactorily cleared of all the fecal matter and, at the same time, every effort should be made to support the patient and guard against subsequent shock. In order that we shall accomplish this we must feed the patient for some time before the operation on an efficient diet, yet one which will leave as little residue as possible for removal by catharsis. I believe that during this period we should use liquid foods which consist of a combination of nitrogenous and vegetable substances. Milk alone and combined with eggs, sugar and liquor, form one of the best nitrogenous preparations we have at our disposal, and another is beef juice prepared as follows: Thick, juicy meat from the bottom of the round is cut into slices an inch or more thick. This is heated in a slightly buttered, hot spider, so as to rapidly sear both surfaces and warm the meat completely. (This starts the juices and is very essential to success.) The slices are now cut up into cubes or strips and squeezed in a meat press which has been previously warmed in hot water, until all the juice is extracted. The juice should be collected in a warm vessel, salted and seasoned to taste and administered while it is still warm.[1] I have found that many patients prefer to take the juice in port wine that has previously been diluted with water. The number of patients who dislike either of these preparations are very few, which is more than I can say of any of the nitrogenous prepared foods on the market. They also offer the advantages of fresh preparation and lower costs. The meat juice to a certain extent acts as an iron tonic owing to the amount of hemoglobin which it contains. For the vegetables constituents of the diet I have depended upon barley, oats, flour, rice and corn meal prepared in the form of gruels and strained before ingestion. The fluid foods should be given at regular intervals of two hours from 6 A.M. to 8 P.M. and in a variable quantity, according to the demands of the patient. Coffee, tea or chocolate are given in small quantities only or completely withheld. Liquid malt is a valuable adjunct, aiding digestion and assimilation and in a measure serving as a pleasant bitter tonic. In certain cases an occasional dose of malt and cascara are of value in assisting the action of the bowels. The triple bromids in doses of 6 grains, t. i. d., act as a sedative to the nervous system as well as a bland aperient and indirectly help in the feeding of the patient. It sometimes happens that a patient can not bear liquid food well as it induces gaseous and acid fermentations with symptoms of abdominal distress. In these cases a carefully selected diet of solid or soft-solid food may be substituted during the preliminary treatment and until the day previous to the operation. On this day liquid food only should be given and on the day of operation all food should be withheld. Some surgeons are in the habit of giving their patients a bowl of clear soup early in the morning of the operation, but I prefer to substitute for this a cup of strong coffee. With careful attention to the above details the bowels can be easily moved or will act spontaneously at least once daily as a rule. If in obstinate cases they fail to do so, a mild aperient will produce a satisfactory evacuation. The result is that just preceding the operation the bowels can be efficiently cleared without upsetting the patient. by the administration of a small dose of castor oil during the evening before, and by washing out the lower bowels with soapsuds early on the morning of the operation. Formerly it was my practice to administer calomel and follow this up with salts, but I found it upset the patient, often caused many unnecessary discharges of a watery and depressing nature and, unless given in large doses, was uncertain. If the calomel is not entirely eliminated there is danger of some subsequent salivation and stomatitis. Patients do not complain of the bad taste of the oil if it is covered up with coffee or the oil is given in the form of an emulsion. After an operation all food should be withheld for a certain length of time. In the simplest class of cases patients feel better if they eat nothing until the following morning, and in abdominal cases it is absolutely necessary to maintain total abstinence for one or more days. In abdominal cases it should be the rule not to feed by the mouth until the normal peristaltic action of the bowels is fairly well established. This is marked by the passage of flatus per rectum and the flatness and softness of the abdominal wall. This rule should be imperative and, no matter how long it may take to establish the bowels, should be carefully followed. It is well to remember that by rectal feeding one often helps the bowels by starting peristalsis from below upward and in the normal direction. The first food after the administration of an anesthetic should be of a bland nature and of a limited amount. Three to four ounces of gruel or a few crackers with black coffee are well borne. Malted milk and Mellin's food are sometimes preferred; their peculiar flavors seem to suit the taste of certain individuals. If the patient is suffering much from enervation of the gastro-intestinal tract before the operation, liquid food with occasionally a cracker or piece of dry toast will often be tolerated when more substantial food would cause distress. If the operation has been one of abdominal section, then the first feeding should be per rectum and peptonized milk and gruel in one-half pint quantities are given at the intervals of five to eight hours. This is first employed at the end of the second or third day, according to the case, and is continued from one to three or more days, until the bowels are free from gas and distension and the passage of flatus from time to time indicates the establishment of normal peristalsis. Simple cases rapidly advance toward the natural condition and in the course of twenty-four to forty-eight hours become fit for the feeding of the third period. The abdominal and cases with nervous depression are less rapid and suffer from distension and symptoms of distress with the slightest excess of food. The use of malted and peptonized foods in these cases should be persisted in for several days. After they become inefficient the patient feels a desire for more substantial food and the bowels are usually active with a daily dejection, or at least one every other day. At this stage a meal of soft solids can be given at midday, consisting of eggs, oysters, custards, rice, tapioca, bread pudding, blanc mange or the various oat, barley or wheat mushes. At the end of a couple of days, with this feeding, meat and potatoes can be added to the main meal of the day, and mush, eggs, toast and fish can be given for breakfast. By the end of a week from the time the patient has begun the taking of solid food, three regular meals can be given daily. It is better, however, to withhold meat from that of the evening.

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[1] The Enterprise Manufacturing Company have placed upon the market a meat-juice extractor which is modified from their meat chopper and which gives very satisfactory results.

The third period is characterized by house diet three times a day and such extra feeding as may be specially indicated by the condition of the patient. Three regular meals a day and two or three lunches are usually prescribed. Breakfast consists of mush, hot bread or gems (made from whole wheat, corn meal or flour), broiled chops, steak, fresh fish or eggs, with chocolate or coffee. Dinner comprises soup, a roast of meat (lamb, beef, chicken, game, turkey), fish, potatoes, green vegetables, bread and pudding (custard, bread, tapioca, rice, etc.). Supper is made of bread, toast, oysters, cold meat, hot gems, cold custard, blanc mange, assorted crackers, with tea or chocolate. All sweets, as candy and preserves, should be withheld and fruits allowed only in limited quantities. Cake and pastry and all articles cooked in fat are also prohibited. Lunches are served two and a half hours after each regular meal and consist of milk, eggs and crackers. By careful feeding in the above manner a large amount of food may be taken, digested and assimilated daily, and at no time will the stomach become over-distended.

If symptoms of distress from gaseous or acid fermentation occur, the regular feeding is suspended for a few hours and the condition corrected by the administration of bismuth and salol and sometimes in urgent cases, a small dose of morphin (one-sixteenth of a grain) is given, which controls the discomfort and nervous state of the patient better than anything I have hitherto tried. Every effort should be made to vary as much as possible the diet of each day. A careful study of the patient will often reveal some idiosyncrasy or special weakness in the digestion of particular food. Whenever a patient expresses herself as unable to eat certain things without a great deal of subsequent discomfort, I believe it is wise to respect this opinion and withhold the food complained of for the effect on the mental condition, if nothing more.

DISCUSSION.

The Secretary, Dr. **EPHRAIM CUTTER** of New York, remarked that the title of this paper included the feeding of surgical patients so as to do away with surgical operations. For example, some years ago a man was brought to him with chronic pleurisy and empyema. A fistula had discharged pus for four years. It had been proposed to resect the ribs as a last resort. This case entirely recovered in a few months by feeding only. Another case of the same kind came under the care of the speaker a few years ago but in a female and of less years standing. It was permanently cured in two months' time by feeding. The diet in both these cases was one pint of hot water before meals and on going to bed, and beef broiled after removing the white fribrous or glue tissue, which glue tissue ferments as sugar does in the alimentary canal. Two mouthfuls of broiled beef to one mouthful of vegetable food (*i. e.*, bread made from the Franklin Mills entire wheat flour) were thus proportionately eaten. A bad case of frog felon came into the hands of a surgeon who cut, but said the man would die as it was very severe. He was right, had the feeding been conventional. But the writer, called in consultation, advised large porterhouse steaks thrice a day as medicine. The man made a fine recovery. Perhaps some may say that these are not germain. Let me then give another case. Some twenty years ago a lady dieted for a round fibroid about three inches in diameter, sessile, on the fundus of the uterus. She tired of the slow process and T. Gaillard Thomas, M.D., LL.D., removed it by the knife. I saw the case during the convalescence. Dr. T. assured us that he never had a case do so well. While I think that the writer is right I should like it much better if people would feed so that no surgical operations would be necessary, but as man now is, this is too much to be hoped for.

WHAT THE MEXICANS EAT AND DRINK.

Presented to the Section on Physiology and Dietetics, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY F. SEMELEDER, M.D.
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At the time of the conquest, Mexico was very poor in vegetable and animal food. The people consequently had to make up for the different things they lacked and eat certain indigenous animals and plants, some of which a European would hardly think of tasting, unless compelled to it by the most extreme hunger.

Wealthy people eat as do the same class in Europe, but their table will always show some national dishes, and in the most fashionable houses pulque will be found on the table.

In dedicating these lines to the especial Mexican dishes it will be understood that we refer to the Indians and the poorer class of people, their food is mostly vegetable. The basis of it is Indian corn in different forms, from the green and half ripe ear to the grits and flour.

Half of the food of the Mexicans consists of *tortillas*. The corn is soaked in hot water with a little lime. In that state it is called *nixtamal*. Then it is ground on a flat stone (*metate*) with a stone roller (*metlapil*) and reduced to a thick mass, out of which the flat, thin cakes, called in Spanish tortillas, and tlaxcales in Nahuatl, are formed with the hands and baked on a flat dish (*comal*) over the fire. To make tortillas is the business of the women and takes most of their time. In order to avoid this and enable the women to do other work, mills have been set up to grind the corn, but in general the country people do not like the tortillas made by this process. It is certainly a great economic drawback that almost the whole time of the women of the poor should be required to make their tortillas, instead of employing themselves in some other profitable work. When the corn is boiled they make with lard, butter, red pepper, sweets or meat, a kind of rolls, enveloped in corn husks and boiled. These are the *tamales*. In the north and in certain parts of the coast the Indians mix corn flour with brown sugar. This mixture is called *pinole*. With a small bag of that an Indian will work and travel several days.

Another necessity of the Mexican is red and green pepper, which is used to season every dish. A Mexican meal is not complete without a dish of *frijoles*, beans. The Mexican can hardly do without chocolate and, if he can afford it, he will take it in the morning and in the afternoon or at night; it is always flavored with cinnamon.

The Mexican is not a great eater, nor can he be called an epicure. The hot taste of the red pepper seems to dull his palate and render him unable to appreciate the refinements of gastronomy. Salt is scarce and dear and little used; for the Indian a pinch of white salt is a great luxury. The indigenous vegetables are many and we can only enumerate a few: The sprouts of a *Smilacea*, eaten like asparagus; the buds and flower of the palm *Chamaedorea* tepejilote (called *metepehuiles*), the sprout of a large palm which is eaten like cabbage; the young and tender leaves of the *Opuntia* (nopal, prickly pear) called nopalitos, the leaves of a *Piperacea, tlalnepaquelitl;* the flower of the *Yucca gloriosa*; the gombo, *Hibiscus gombo;* the flowers of a *Papilionacea, Erythrina coralloides*, called *quimites* and *gasparitos;* the red and green pepper (Capsicum annuum); tomatoes, red and green (Lycopersicum and other solaneas); the pumpkin, when young and tender or when fully developed; the pumpkin flower; melon and watermelon (introduced from Europe); the flower of the *quaunzontle* (blitus bonus Henricus). In the northern states the prickly-pear (*tuna* in Spanish) forms a great item in the subsistence of poor people. To season dishes they use *epazotl* (chenopodium ambrosioides) and *papaloquelitl* (porophyllum coloratum, D. C.), the *Amaranthus hypochondriacus* (quintonil). The chenopodium viride (*quelitl*), the *romeritos*, the marshmallow, the purslane (portulaca), the *xoconoxtli* (literally red berry), the sour tasting fruit of a certain cactus. The *mohitli* (sericographis mohitli), *tè limon* (Andropogon citratus, D. C.) *tè de milpa* (bidens tetragonum) and orange leaves in infusion are common beverages taken in the morning with or without milk. Fish and amphibia: Of the latter the iguana (cyclura and iguana), lizards which are sometimes three feet long, in the warm lands; turtles and their eggs. In the lakes of the tableland the white fish (Atherina Humboldtii), the *juil* (Cyprinus Americanus), the *mextlapique*, a viviparous small fish; the *axolotl* (various classes of *Amblystoma*) which was only lately found to develop into a lizard; a kind of clam (*almeja*, a strange derivation from mytilus, Anodonta Mexicana); a small kind of fresh water shrimp, about one inch long, *acaucil* (Cambarus Moctezumae). In the rivers along the coast crawfish is found, but rarely; also eels and shad. A small kind of snipe (*chichicuilotes*) living in great numbers on the marshes of the valley of Mexico; ducks when they pass through on their passage north and south. *Ahuautle*, the roe of a kind of fly of the hemipterous family, coryza femorata; the locust, when it appears on the coast; the *xumil*, in the south, with a peculiar odor like bugs; the chrysalis of a night butterfly, living in the maguey plant; a kind of caterpillar, over an inch long, with black hair, living in nests on trees, etc. Of quadrupeds: In the warm lands, the armadillo and a kind of opossum.

What the Mexicans drink: Water, first of all, though even that in many places is rare, bad and unwholesome.

Pulque, the national drink, called the "Mexican wine." We shall have to devote a special chapter to the plant that yields pulque and to the process by which it is prepared. In this place we consider pulque only as a drink. It comes from the northern parts of the States of Pueblo and Mexico, along the Vera Cruz railway. The maguey plant grows on soil where nothing else can be produced and, as the pulque has a ready sale at a profitable price, the cultivation constitutes the special wealth of all this part of the country. Pulque is consumed in large quantities; the Vera Cruz railroad runs a train every night to carry it down from Apam, to be distributed in the City of Mexico in the early morning. The railway freight for pulque is on an average $1,000 a day. Pulque is a white liquid, with dregs of slimy flocks, of sour taste and smell, with a putrid flavor. Besides the alcoholic and acetic, likewise putrid fermentation is going on; the latter explaining why pulque can not be preserved, as it continues fermenting until the whole liquid is spoiled. It is drunk two or three days after being made while it is yet fermenting, and is adulterated, as is everything that is extensively used. Pulque is alcoholic and highly intoxicating; as it is very cheap it ought to be the delight of drunkards; for one cent you can get a big tumbler full and for two or three cents a man can drink himself beastly drunk. The common people in Mexico are great drunkards. It is said to have digestive and nutritive properties; but this can not be true, for nowhere in the world do you find more anemics and with poorer digestion. For festivals pulque is cured with different classes of fruit. Some years ago a speculative fellow tried to export preserved pulque. An advertisement has been sent to us, with the information that somewhere in Jersey City genuine preserved pulque can be had. The advertisement contributed to it every good quality and went far enough to say: "Pulque, notwithstanding the alcohol it contains, never produces the bad effects of alcoholism, even when taken in excess." That is humbug. Pulque can not be preserved. When fermentation is artificially interrupted, the liquid is no longer pulque. An inferior class of pulque is called *tlachique*. The sap of other kinds agave furnishes a fine brandy called *mexcal*, which has a smocky flavor, much like Scotch whisky. The brandy made at a certain hacienda in Jalisco takes the name of the place: Tequila.

Cheap brandy, aguardiente, burning water, is made in sugar factories and called chinguirito. A certain class of brandy supposed to come from Spain and to be made of grapes, is called catalan.

Colonche.—In the interior of the country where the Agave will not grow, an alcoholic drink is made from the juice of the red tuna (prickly-pear). By adding water and brown sugar, the juice is made fit for alcoholic fermentation. To make it stronger and more durable, brandy is added. It is quite intoxicating.

Beer of good quality and high price of late is extensively made in the country.

Wine.—The cultivation of the grape was prohibited by the Spanish rule in order to monopolize the sale of wine for Spain. Now grape is cultivated in different parts of the Republic. In the central and lower lands it does not yield well, for the rainy season begins just when the grapes need dryness and heat. The same circumstance prevents the culture of hops. The places where wine is best grown are Dolores (State of Guanajuato), Parras and other places in the State of Coahuila. Genuine and good Mexican wine, like an inferior class of sherry, can be had in the City of Mexico for twenty-five cents a bottle. As it is not appreciated and finds no sale, all that wine goes to Texas. Certain extensive plantations in Coahuila, where good care is taken of the grape, produce a first-class quality, equal to the better classes of Spanish and Greek wines. By adding large quantities of sugar, the juice of oranges can be made to ferment into a kind of cider.

Chia.—The seed of a species of sage (salvia chian) a small black grain, when kept in water for some time covers itself with a grayish, slimy layer and looks then very much like frog-spawn; it is diluted with water, sweetened and flavored with the juice of certain classes of fruit and makes a nice refreshing drink.

Chicha is made by boiling barley; then the water and barley is exposed to the sun and air for a few days; when it begins to ferment it is sweetened and mixed with pineapple juice and is then a cooling beverage.

Tepache.—Dregs of pulque or toasted barley or crushed sugar-cane form the basis; mixed with water, pineapples, bananas, guayabas and sugar it is put to ferment; then nutmeg, clover or cinnamon is added, as well as molasses, and the liquor is ready. It is alcoholic.

Tibico.—When sugar-cane in the factories has gone through the cylinders the remains fall into a tub; the larger fibers are taken away to make brandy; the smaller ones like bran, remain a few days in the tub, fermentation begins and a kind of microscopic fungus develops. In this state it is called tibico; that is taken out and beaten with water, which causes an enormous and rapid growth of the fungi, so that the liquid increases under your eye. It is then diluted with water, sweetened with brown sugar, flavored and drunk. Hence tibico has become the synonym for exuberance.

A great comfort in hot countries is a refreshing drink. Plenty of natural ice is obtained from the volcanoes, and lately in several places artificial ice is to be had. In all the other places of the country, to get a cool drink of water, porous clay jars are used; by the constant oozing and evaporation of the water on the surface the contents of the jar are kept cool. In many places of the hot lands you see these jars hanging from the roof in the hall or in the corridor of the house and whoever feels like it helps himself to a drink.

Tuba.—On the Pacific Coast there grows a kind of coco-palm, not known on the Gulf Coast. The nut is of the size of a child's head, the flesh abundant and soft, so as to be eaten with a spoon. When the bud comes out, before the flower is developed the bud is cut off and a milky, very sweet sap distills out, which is drunk fresh or after fermentation. This is in Colima the drink of the poor people and is called tuba.

The lowest class of Mexicans have always been great drunkards. Pulque has a disastrious effect on the body and mind, but not quite so bad perhaps as common brandy. The Mexicans of the better classes were formerly exceedingly sober; twenty-five years ago there were not more than half a dozen cantinas in the City of Mexico; now there is one at nearly every corner. Drunkenness is now a common vice with young men of good families; they consider themselves more like men and equal to the Americans if they indulge in excessive drinking. Older people drink hardly anything but water; wine is very dear on account of the heavy duties; the wine of the country is not appreciated. And so we have again arrived at the water, which after all is the best, cheapest and healthiest drink. 'Αρίστον μὲν ὑδώρ, in spite of the German students who sing: *Cervisiam bibunt homines, Animalia cetera fontes.*

THE MAGUEY PLANT AND THE MAKING OF PULQUE.

The maguey plant, *metl* in the Aztec language, botanically Agave Americana (centennial plant in the United States, as it is supposed to bloom only once in a hundred years), called aloe in some parts of Europe, belongs to the liliacea family, tribe alströmeria. It is indigenous in Mexico; it grows everywhere in the hot and clod lands, on dry or marshy ground. But the finer varieties, tecometl or tlacametl, those that yield pulque or tlachique, only grow in the cold and high lands, principally in the northern parts of the States of Puebla and Mexico, called the plains of Anahuac. The plant, as is well known, is characterized by an extraordinary development; the stem is solid, covered by the leaves and measures sometimes 50 cm. in diameter. The leaves are stiff, of the form of a gutter, concave on the upper side and convex on the lower. The edges of the leaves are full of thorns; the fleshy part is full of thin parallel fibers, the surface being thick like leather and shiny. When the plant is completely developed, which takes at least ten years, it is of considerable size; the leaves are over 3 m. long, more than 30 cm. wide, 10 cm. thick at the bottom, the edges lined with wreathed thorns, the upper one of them 5 or 6 cm. long. The bud is at first enclosed in a straight cone. While the whole plant needs at least ten years to fully develop, the stalk, which grows over 5 m. high, reaches maturity in a few days. The upper end of the stalk, when it blooms, spreads out in candelabra, each of them crowned at its end by a corymb of greenish yellow flowers.

A maguey plant that has flowered dies within two or three years. If the bud is cut off, which is done with a special instrument made of oak wood, and a deep hole is scraped out in the stem, the sap that was intended to form the stalk and the flower collects in that hole. That sweet sap is what they call *aguamiel*, honeywater; it contains water, sugar and gluten. A plant that is tapped in that way will die within four or six months, during which time it will continue to give aguamiel; but then the stem will already be surrounded by little plants, that only need transplanting. That is the only nursing the maguey requires.

The aguamiel is collected twice a day by means of a calabash, used like a siphon; it is emptied in raw ox hides, spread out on a wooden frame so as to form a trough, in which some old pulque dregs are thrown. There the fermentation sets in; alcohol, acetic acid, carbonic acid and putrid fermentation are formed and in two or three days the pulque is ready for use. It is sent to Mexico in barrels or in pipes made of hog skins.

There are more than thirty varieties of maguey, only twenty-two of which are fit for making pulque. These plants are cultivated, one might say civilized; the others grow wild and are valuable only for hedges and for fiber. Since the discovery of America the maguey plant has been introduced and acclimated in the south of Europe, and all along the coast of the Mediterranean Sea it grows without culture and like an indigenous plant, giving the landscape a characteristic aspect. The maguey is one of the most useful plants; an Indian might almost live on maguey alone.

Messrs. P. and J. Blasquez, to whom we are indebted for many details about the maguey, give the following enumeration: The underground part of the stem, ground with some maize, is made into cakes. Some varieties give a brandy; the stem fried and distilled gives the brandy called mezcal and tequila. Aguamiel, pulque and tlachique are drunk extensively and often to excess. Old pulque may be converted into excellent vinegar. The stalks are used as poles to build huts; the leaves furnish the roof; the thorns are used for needles and nails, the skin of the leaves for sandals, the fiber of the leaves, pita, for thread and is also made up into ropes, textures and paper; the coarser fibers furnish brooms and a kind of brushes; the roots are used for soap. When the bud is torn off there is found a coil of fiber which weighs half a pound and is as fine as silk. The dry leaves, stems and roots are used for fuel. The bud, half fried, becomes sweet and furnishes food for the poor. The tender flowers, mixed with eggs, make a kind of omelet.

A species of butterfly, Teria agaves, Papilio agaves, lays its eggs in the fleshy leaves of the maguey; in the next spring the caterpillar is formed. It is about two and one-half inches long and of the thickness of a finger. The Mexicans dig them out and eat them fried, with salt and red pepper. These worms are considered a great delicacy; they are said to taste like almonds or hazelnuts. We have never tried them. Besides this the maguey is the habitat of another kind of butterfly, Bombyx agaves, and of two species of hemipterous insects, Lystra bombycida and Velia agaves.

THE PREVALENT DISEASES.

The prevalent diseases and those which cause the greatest mortality in the Mexican Republic, according to a valuable work of Dr. Orvañanos: "Geografia Médica de la Republica Mexicana," and of course different according to states and localities, are: Continuous fevers (including, I suppose, typhus, rheumatism, etc.); pneumonia (with bronchitis and catarrhal affections of the respiratory organs); intestinal affections (dysentery and catarrhal, in great part due to abuse of alcohol); intermittent fever (including pernicious, remittent and malarial); leprosy exists in certain parts, and pellagra and "*el pinto*" a cutaneous affection not sufficiently studied (in the States of Guerrero, Michoacan, Tabasco and Chiapas); goiter, cretinism occurs, deaf dumbness (limited); yellow fever (endemic on the Gulf Coast, in certain districts of the States of Vera Cruz, Tabasco, Campeachy and Yucatan; epidemic occasionally in large parts of the country, always confined to the coasts, but of both oceans); cholera visited almost the entire country in the thirties; smallpox, general, doing great havoc, as vaccination is not properly attended to; measles and scarlet fever; diphtheria (the Mexicans pretend that it was unknown until the last invasion of the French, who are said to have imported it; not extensive); whooping cough (limited).

Pneumonia and bronchial troubles, common and deleterious, principally in the higher parts of the country and during the cold season (fibrinous rare) and many other diseases; rabies occurs, so does lithiasis; liver abscess, even in persons who have never lived in the hot country nor had dysentery; tuberculosis is not frequent, but especially deleterious in the hot lands; tetanus, not rare in the hot low lands, traumatic as well as neonatorum; snake bite very rare; insolation never heard of.

One of the particular features of our climate is the almost total absence of typhoid fever. Indeed, most of the Mexican physicians assert that it never occurs. I myself, and other foreign physicians who have observed typhoid in Europe, am not of that same opinion, but we admit that it is quite rare and never takes an epidemic form.

Another strange phenomenon is observed with regard to typhus. That disease is endemic and epidemic all over the elevated table land and causes numerous deaths. It seems that an elevation over the sea of less than 4,000 feet is quite unfavorable to its production and establishment and we may practically say that it does not occur in the low lands. Here Dr. Orvañanos is decidedly mistaken in his geography, when he says that typhus occurs in places where physicians of thirty or more years practice affirm to have seen but one case or none at all, and those isolated cases might have been imported.

It would seem that the habitat and conditions of development of yellow fever and typhus are precisely the reverse and that where one is endemic the other does not find a favorable ground. How that is remains unexplained until now.[1]

VICIOUS READING DISTANCE AS A CAUSE OF ASTHENOPIA.

Presented to the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, June 1-4, 1897.

BY CHARLES HERMON THOMAS, M.D.
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The review in outline of a single typic case must serve to illustrate the present topic.

J. B. J., male, student, aged 15 years, consulted me in October, 1896; wearing weak, minus compound cylindricals giving vision $\frac{6}{6}$ in each eye. It was stated that the refraction had formerly been hyperopic and the progress of the myopia rapid; had been refracted some months previously at competent hands and no additional myopia had since developed. Glasses were left unchanged. Muscular tests, including tropometer, gave no indication of heterophoria. Ophthalmoscope shows slight striation with slightly heightened color. Asthenopic symptoms were very distressing. He complained chiefly of brow pain on use of the eyes in reading, which was accompanied by nervous depression of a disabling character. These symptoms, however, were absent during vacation periods. He had much difficulty in his school work, was backward in his classes, at least two years behind those with whom he started, though he was intellectually bright and a member of a talented and scholarly family. The question of his entire removal from school was, and for some time had been, under consideration. The book in reading is held habitually at something less than *seven inches*, though as his vision for distance would indicate, he reads the smallest type at thirteen to fifteen inches with entire ease. I advised the strict adoption of a thirteen-inch reading distance, which being tested for one week, complete relief of symptoms was reported; he has been able to keep up with his studies without difficulty. Two months later the same favorable report was confirmed.

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[1] With this paper was shown a box containing Mexican plants that were used for ptizans, sent by Dr. Semeleder specially for this Section.

I refrain from the further citation of cases, though my note-books show a number closely allied to the one just related. Many must have seen cases of this class, notwithstanding which it is probable that they are not as frequently recognized as their importance calls for. Plainly in this instance the asthenopia and the nervous symptoms were of combined accommodative and muscular origin due to the vicious reading distance. It will be seen that the strain here thrown upon the ciliary muscle amounted to about 3 D. beyond that normally employed, aggregating when the eyes were used in reading about 6 D. of accommodative effort; while at the same time there was an equivalent muscular strain involving a like number of meter angles of active convergence.

The habit of holding the eyes too close to the work is one common among school children, and experience shows that many of them can not bear the strain involved without serious ocular and nervous damage.

Vicious reading distance, as a cause of asthenopia and apart from its relation to myopia, appears to be deserving of more consideration than it has yet received. As to the cause of the condition, it is doubtless a continuation of the habit of infancy of holding objects close to the eyes to obtain the larger retinal images; aggravated and confirmed by faulty relations of study tables and school desks. As to its correction the prognosis is not always encouraging. Few patients will be found to yield such implicit obedience as did the one in question. Indeed the difficulty in securing any considerable improvement in this respect, even with the aid of teachers and parents, is often almost insurmountable.

1633 Locust Street.

DISCUSSION.

Dr. EDWARD JACKSON, Philadelphia—This matter has seemed to me to be one of a great deal of practical importance, but one of its direct difficulties is to get patients to realize this. I think some times after an elaborate examination and the prescribing of glasses, that if we bring out the point that simply by holding the book one, two or three inches too close to the eyes the patient can undo all the good work of the glasses, he might be induced to appreciate the importance of it.

The harm of excessive accommodation is perhaps not fully measured by the number of diopters, if our theory of accommodation is correct, and it depends on elasticity of the lens. The lens acts like a spring, and we know it takes more force to affect a spring after it has been deflected than to deflect it to the same extent in the start. The same principle may apply to the work of the ciliary muscle. A patient using 3 D. of accommodation more than necessary is giving more than twice the effort necessary for 3 D. of accommodation.

There is a reason for this vicious working point in the fact that the larger images are easier of mental recognition than the smaller ones. That accounts for the habit that all infants have of holding things very close.

Dr. J. A. LIPPINCOTT of Pittsburg—I have had an opportunity of observing several cases of the kind reported without esophoria in the majority, but in one with esophoria it seemed to be sufficient to account for the malposition. I found all the cases benefited or cured by wearing a frame attached to the head, upon the distal end of which was a support for holding the book to be read. In that way the patient can not move the head without moving the book, and the proper distance is maintained.

Dr. WILLIAM THOMPSON of Philadelphia—I have under my care now a case very nearly like the one reported. A very intelligent lady is preparing herself for the position of librarian and she is anxious to do many hours of near work. A few years ago she had 3 or 4 D. of myopia; it is now about 6 D., but she is wearing her old glasses which I allow her to use. She has about 2 degrees of esophoria. I have found it impossible to make her read at the proper distance though she has been told over and over again. When she writes she puts her head down with the nose almost against the paper. She suffers with headaches because she persists in removing her glasses and reading within her far point.

THE USE OF FULL CORRECTION CYLINDRIC GLASSES IN ALL CASES OF ASTIGMATISM.

Presented to the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY LOUIS J. LAUTENBACH, M.D.
PHILADELPHIA, PA.

I believe that the entire correction of the astigmatism present in every eye, is a necessity, that is, provided the eye is used at all for near work. If there is no use for a knife there is no need to sharpen it, but just as soon as the eye is used as an instrument for seeing, its refraction must be so adjusted that the ciliary muscle fibers act equally, and not unequally as in astigmatism, to produce a clear, distinct image on the retina.

The disturbances of the recti muscles of which we hear so much today are in a great part but a development of nature's effort to allow the tired ciliary muscle some rest by presenting on the retina an image which requires other fibers of the muscle than those previously exhausted, to do an extra share of work, relieving those which have become tired from overuse. Of course the neurotic element in developing recti disturbance is a very important one, but is often only the reflex condition brought about by the train of pathologic circumstances portrayed.

In addition to the effect on the recti muscles exerted in the manner described, there is still another influence at work whenever there is present any astigmatism whatever. In a paper presented to this Section at the Baltimore Meeting, I advanced a theory as to the formation, retention and want of retention of the normal corneal curvatures, and I think demonstrated that the recti, oblique and the ciliary muscles were, in addition to the influence of the eyelid, the pressure of the orbital cavity and structures, concerned in the retention and alteration of the corneal meridians. In a paper recently printed in the *Ophthalmic Record*, I recorded some observations on the influence of nasal affections on these curves, exerted through reflex influence on the recti and oblique muscles. Now, if the muscles can and do affect the curvatures, does it not seem reasonable that the reflex influence of an indistinct image on the retina and an unequally tired ciliary muscle can and does exert itself on the oblique and recti muscles to such an extent as to occasion insufficiency of the recti with disturbances of the obliques as well, and does it not then follow that some of the cases which now have prisms used, and others in which graduated tenotomy plays an important part, are but such in which the muscular balance should not be interfered with, as the inequality of the muscular action is but Nature's method to relieve a pathologic condition by the rest cure? Should we not rather re-examine the eye as to the refractive error, especially as to the amount and axis of the astigmatism present, correcting it fully, as it may have varied since the preceding examination, not being always a constant quantity. Then, in addition, give the eye the nearest approach to perfect rest possible by abstention from close work.

I feel confident that if in cases of disturbed muscle balance, work in accordance with the suggestions here presented be instituted, there will be quite a group of these cases which will be curable without any thought of operation or of propping up of the apparently weakened muscles by prisms.

The theoretic conditions seem borne out by practical experience, and, in fact, they have been suggested by the results obtained through the re-examination of heterophoric eyes and the use of full astigmatic correction glasses.

DISCUSSION ON PAPERS OF DRS. DEAN AND LAUTENBACH.

Dr. L. J. Lautenbach of Philadelphia—There is a thought that I would like to give voice to here, and it is a growing one, that is that the lenticular astigmatism does not remain constant, but varies, under some conditions, from moment to moment. I have had a patient wearing astigmatic glasses correcting in part the corneal and lenticular astigmatism, using one set of glasses for near and another for far work and I have tried in every possible way to obtain a glass that would combine the same cylindric effects, and have failed to do so.

Dr. J. A. Lippincott of Pittsburg—In regard to the statement made in the paper, there was no way of explaining the discrepancy between the general refraction and the corneal refraction as given by the Javal ophthalmometer except by the lenticular astigmatism. I have not very infrequently seen, in cases from which cataract had been removed, a decided difference between the real refraction and the corneal refraction as shown by the ophthalmometer. This astigmatism I assume to be found in a peculiar curvature of the posterior part of the eyeball. The posterior curvature of the cornea may perhaps be an influential factor, the anterior portion being the part determined by the ophthalmometer.

Dr. W. L. Thompson of Indianapolis—Did I understand Dr. Lautenbach that he would correct the full astigmatism no matter how high the degree? Would you if there were five or six degrees in the vertical meridian and as much in the oblique? I would expect the patient to have diplopia under the circumstances.

Dr. G. E. Dean of Scranton, Pa.—Dr. Lautenbach brought out one interesting point in regard to the rapid variation of the conformation of the lens. This may be the reason why so many cases, after very careful correction by good oculists, change within the first eighteen months and require a re-examination and stronger correction, and then remain in the same condition for several years. I have seen a patient while being examined by the ophthalmometer change the conformation of the lens to the extent of 0.5 D. and it is a very interesting thing to watch. It is done by muscular action. In regard to Dr. Lippincott's point, I did not intend to exclude the conditions at the posterior pole of the eye.

Dr. L. J. Lautenbach of Philadelphia—In answer to Dr. Thompson, I would say that I never fail to order a full correcting cylinder, but may vary the general refracting glass.

Medical Law Unconstitutional.—According to the *Idaho Daily Statesman*, the medical law in Idaho has been declared unconstitutional, having passed the Senate irregularly. This was the decision of the Supreme Court, December 4, in a case brought to compel the Board of Medical Examiners to issue a license to the plaintiff to practice medicine. The decision virtually makes the Board of Medical Examiners a thing of the past.

EXAMINATION OF THE EYE BY OBLIQUE ILLUMINATION, WITH THE BINOCULAR MAGNIFIER.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

BY EDWARD JACKSON, A.M., M.D.

PROFESSOR OF DISEASES OF THE EYE IN THE PHILADELPHIA POLYCLINIC;
SURGEON TO WILLS' EYE HOSPITAL.
PHILADELPHIA, PA.

The original form of the binocular magnifier was that of two partial lenses cemented together at an angle. Its proportions were not what have since proved to be the best, but they were sufficiently good to make it a very practical working instrument, as soon as it had been learned how to use it. But the writer's first attempt to employ it, persisted in until it caused severe eyeache and headache, resulted in complete failure; so that the lens was thrown aside for weeks before the second attempt was made. The same difficulty has been experienced by others.

The use of such lenses seems easiest to young persons who have worked little with optical instruments, and are accustomed only to normal binocular vision. In proportion as one has learned to use monocular optical instruments, like the microscope and ophthalmoscope, and especially the ordinary magnifier or corneal loupe, is the difficulty of learning to see through the binocular magnifier increased. Still this difficulty is not, for any one, greater than the difficulty of learning to use the ophthalmoscope; and when once you have learned to see through it the difficulty of the instrument has been overcome. The appearances that are to be studied with it are those with which we are already familiar by binocular vision, or through the monocular magnifier, only that these appearances are with this instrument more striking and definite, and the finer details are brought out and made more prominent. The first difficulty is greater than most persons would suppose; but that first difficulty having been mastered it is an easy instrument to use.

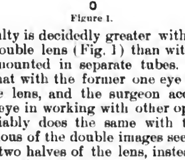


Figure 1.

The difficulty is decidedly greater with the simple decentered double lens (Fig. 1) than with the lenses and prisms mounted in separate tubes. One reason for this is, that with the former one eye can see both halves of the lens, and the surgeon accustomed to exclude one eye in working with other optical instruments, invariably does the same with this and becomes conscious of the double images seen by one eye through the two halves of the lens, instead of selecting and fusing the proper images presented to the two eyes, and excluding what is, in this examination, irrevalent.

Another difficulty experienced with this original form of the lens comes from the reflections from its surface. In a room with diffused illumination this may quite prevent one from seeing through the lens, even though he be familiar with its use. In a room properly darkened for oblique illumination such reflections are readily avoided.

The later form of magnifier, inclosing the lenses in the tubes (Fig. 2), gets rid of annoying reflections altogether. It also prevents one eye from seeing through both lenses. With this form of instrument, I have not found any one possessing good binocular vision, who could not get the binocular effect at the first attempt with the magnifier, although it might readily happen that false adjustment of the instrument, or the holding it improperly with relation to the eye looked at, or with relation to the surgeon's eyes, would prevent this.

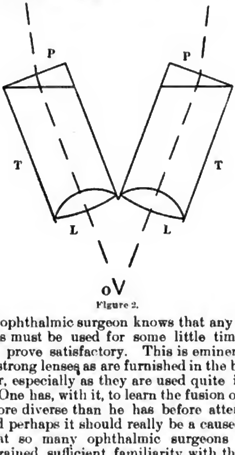


Figure 2.

Every ophthalmic surgeon knows that any new pair of glasses must be used for some little time before they will prove satisfactory. This is eminently true of such strong lenses, as are furnished in the binocular magnifier, especially as they are used quite intermittently. One has, with it, to learn the fusion of images rather more diverse than he has before attempted to fuse; and perhaps it should really be a cause for surprise that so many ophthalmic surgeons have so quickly gained sufficient familiarity with the instrument to make it of practical service.

Adjustment.—The most important point in the adjustment of the instrument is that the prisms shall be so turned as to bring the two images for the respective eyes to the same level. Any one free from hyperphoria can make this adjustment by holding the lenses at rather less than their focal distance from a sheet of paper on which is a straight line. The instrument is held with the bar joining the two tubes parallel to the line which is to be seen through the tubes, the right eye looking through the right tube, the left eye through the left. The eyes are not brought close to the diverging ends of the tubes, as in using the instrument, but are withdrawn some inches from them, so that the portion seen through one tube does not appear to coincide with the part seen through the other tube, but the two areas appear to lie side by side, each crossed by the line which is used at a test. Under these circumstances the line should appear continuous across both areas. If in one area the line appears higher, it shows that the apex of the prism of that side is directed too much upward, and this is to be corrected by properly rotating the prism, having first loosened the screw that binds it. When the line is thus made continuous across both fields the instrument has been adjusted, and the binding screw should be again tightened. The best adjustment is with the bases of both prisms turned exactly toward the nose, in which position the line appears continuous in the two tubes, and when made to cross the middle of the field is also continuous with the line as seen outside of the tubes. But if both prisms are turned equally up or equally down, a slight deviation from this exactly horizontal position of their bases is of no practical importance.

In the matter of adjustment of the width between the surgeon's pupils, no special attention is necessary, since it matters little whether the surgeon's pupil comes opposite the nasal or the temporal portion of the prism. The adjustment can, however, be effected by varying the distance of the lenses from the surgeon's eye. The diverging ends of the tubes are close enough together to suit a very narrow interpupillary distance, if the eyes are brought close to the end of the tubes; but by withdrawing the eyes from the ends of the tubes the widest interpupillary distance can be equally well accommodated.

In adjusting the position of the object it must be borne in mind that with this instrument each eye can see only within a tubular space, and both eyes can see the same object only when it is held at the intersection of these tubular spaces. The lenses and the inclination of the tubes are calculated to give emmetropic eyes distinct vision, with little or no effort of accommodation, at the distance of this intersection. If one has high myopia, he must either have the lenses in the instrument replaced by weaker lenses; or he must have the instrument adjusted so that the tubes will meet at a slightly greater angle, so that the intersection of their fields of vision will occur closer to the lenses. To be used by a surgeon of high hyperopia, the tubes of the instrument should be more nearly parallel, or the lenses should be made correspondingly stronger.

Aberration.—The surfaces of the lenses are so selected as to reduce spherical aberration to the minimum, by making the radius of curvature of the surface toward the surgeon's eye the shorter, and the reducing of curvature of the surface toward the object. The simple lens is made plano-convex, and the proportion is 1 to 6 for the lenses mounted in tubes. Some aberration may, however, be noticed at the periphery of the field, with the stronger lenses employed. The field has been made as large as was available, without resorting to some combination for the correction of aberration. It has seemed to the writer that simplicity and cheapness were very much more important than the slight gain to be made by correcting aberration through the use of a complex lens.

Chromatic aberration is never noticed except when one looks at black lines on a white ground. Then it becomes perceptible, although the two eyes correct each other so that in the center of the field the lens gives no chromatic effect. What dispersion does occur at the center of the field is due to the prism. Now the prism before the right eye (with its base to the left) gives to a black line running perpendicular to the visual plane, a red fringe on the right border and a blue fringe on the left. The left eye, looking through a prism with its base turned toward the right, sees the same black line with the red fringe on its left side and the blue fringe on its right. If the lines be brought to the center of the fields for both eyes, so that dispersion is as great in the one image as in the other, their combination in binocular vision causes the color effect to almost entirely disappear, giving an achromatic image.

If, however, such a line be seen at one side of the field, the colors seen by the eye of the same side will predominate and become noticeable in binocular vision. If while looking through both tubes, one eye becomes excluded from the visual act, as by habit from the use of other optical instruments, the colors seen by the eye used may be noticed. For looking at objects like the anterior segment of the eye, that do not present the especial contrast of black and white, no chromatic aberration is noticed.

Strength of lens.—The stronger the lenses employed the closer must they be brought to the eye looked at when in use. The strength that it is possible to employ is therefore limited as the strength of the monocular corneal loupe is limited. The strength of lens, of course, directly determines the magnifying power. The writer had supposed that within such limits the greater the magnifying power the more useful would the instrument be, but experience shows that this is not the case.

For studying certain minute details of the iris or cornea the strongest lenses that can be used, probably about one-half inch lenses magnifying 20 diameters, may be of service. But for ordinary clinical work, including the inspection of the cornea and iris, much weaker lenses will be found of more general service. Thus, even the one-inch lens is too strong to see at the same time, with comfort and profit, the iris in normal position and the cornea. A weaker lens, as the 2 inch, 20 D., will give a much better idea of the depth of the anterior chamber; and is quite as good in discriminating the depth of opacities in the cornea and crystalline. In general, it may be laid down that it is wise for the surgeon to start with the binocular lens, not stronger than the monocular magnifier that he has been accustomed to employ.

Value.—The benefit of the binocular magnifier in giving a better idea of the relative depth of the objects seen is obvious. An equally important benefit, which would scarcely be expected from *a priori* consideration, lies in the increased vividness of the impressions from binocular, over those obtained in monocular vision. We are accustomed to think that one eye can see just as much as two. And in a strong light, for the recognition of perfectly familiar objects, this may be almost true. Still, even with the best illumination, and such familiar objects as test-letters, if the two eyes see about equally well there is always a distinct gain in acuteness of vision when the two are used together.

If the illumination becomes feeble this gain is very much greater. If one trying to find his way in a darkened room will cover one eye, he will notice a very great reduction in his power of recognizing objects. Something of the same sort is true of vision with the best illumination, if the objects to be recognized are unfamiliar. Only one who has tried it can appreciate the increased force and definiteness of the visual impressions, obtained through the binocular magnifier. By such impressions points will very often be recognized that would otherwise quite escape the observer; although after his attention was drawn to them he might be able to make them out fairly well with the monocular image.

Of the use of the instrument mounted on a head-band, Fig. 3, for operations I have only to say that it is a great help in the removal of small foreign bodies from the cornea, and in operations upon the iris or lens capsule. In certain points, as the recognition of incarceration of the iris, or in the opening of the lens capsule, it is a decided help for cataract extraction. Of course, weaker lenses which would be of service in other operations, could be mounted in this same way. Yet as they were made weaker the advantages of the instrument over a special pair of operating spectacles would diminish. Probably with lenses of the same strength as those so far employed in eye work, or even with stronger lenses, the instrument may be found serviceable in dentistry, and in certain operations on the skin and hair bulbs. It seems certain that the binocular simple microscope will give very important aid as an instrument for study and investigation in the biologic sciences.

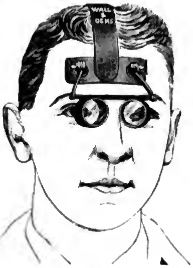


Figure 3.

The different forms of the magnifier are made by Messrs. Wall & Ochs of Philadelphia.

DISCUSSION.

Dr. C. F. **Clark** of Columbus—I would like to ask whether, in case of hyperphoria that does not require correction for comfort, Dr. Jackson would consider it worth while to have an instrument constructed with particular reference to that, or should it be corrected on the glasses being worn.

Dr. **Jackson**—I think an amount of heterophoria that might not cause serious trouble in the ordinary use of the eye might be a considerable obstacle to learning the use of the instrument, particularly if it were hyperphoria. It can be readily compensated for, however, by simply turning the prism, which is adjustable.

CONGENITAL OPACITY OF THE CORNEA.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1-4, 1897.

BY H. MOULTON, M.D.
FORT SMITH, ARK.

The recent articles by Tepljaschin (*Arch. Ophth.*, Vol. xxvi, p. 74) and by Barbacheff (review in *Ophth. Rec.*, Vol. vi, p. 88) have stimulated interest in the rare anomalies of corneal transparency of congenital origin.

The point of practical interest is to determine whether such a case is due to arrested development or to an inflammatory process, especially interstitial keratitis of syphilitic origin *in utero*.

My case was that of a boy seen Nov. 14, 1896, at that time 8 years old. The case had also been seen by my colleague Dr. W. G. Smith in January, 1890, who noted as follows: "Total opacity of left cornea, said by parents to have been present from birth. The parents also stated that opacity would sometimes clear up so that the outline of the pupil could be seen. V.=Pl." There was no record made of nystagmus, but a concomitant convergent squint was noted. To me the parents made the same statement, viz., that the opacity was discovered within a few hours after birth, and that there had never been any redness or secretion about the eye. This statement can be credited, for the father was of sufficient intelligence to have observed correctly. The opacity occupied the whole of the cornea but was most dense in an area above and to the nasal side of the center. It was least dense below and to the temporal side, and through this latter area by focal illumination the outline of the pupil could be dimly observed. The superficial and middle layers were the ones that were opaque. The diameter of the cornea was found by measurement to be 1.5 mm. less than that of its fellow.

The right eye also presented interesting conditions. The cornea was perfectly transparent and the eyeball was normal in shape and size, but the eye was myopic and amblyopic. V.=$\frac{15}{200}$. Under a strong mydriatic with —5 D. Spher. V.=$\frac{15}{30}$. Owing to nystagmus the fundus was difficult to explore, but changes were made out in the papillo-macular region. These consisted of a thinning of the retina and choroid, greatest at the temporal side of the disc and of a pigmented stippling about the macula with a few pin-head sized spots of pigment irregularly placed about half way between the macula and papilla. A marked horizontal and rotary nystagmus affected both eyes. After wearing glasses a few weeks this still remained, but to a much less degree.

The parents gave no history of syphilis and neither they or the boy presented any objective evidence of it.

It is needless to call attention to the fact that the best text-books have very little to say on this subject, and that cases are very seldom met with or reported. I shall not take up time with an account of the literature, but I have imperfectly studied the published accounts of ten cases. No two of them were alike, and in none of them was the opacity complete. Manz remarks that cases of congenital total opacity are extremely rare. In six of these cases both eyes were affected; in four, but one eye. Of the first, three were stated to be developmental and three inflammatory. Of the latter, three were developmental and one inflammatory. In each instance the inflammatory cases were traced to interstitial keratitis of syphilic origin. From these cases it would seem that where a single eye is affected, arrested development is most likely to be the cause of the anomaly. Another fact is made indisputably evident, viz., in all the cases of syphilitic inflammatory origin the deep layers were the only ones affected by the opacity. This was proven microscopically in some of the cases. In all the cases where the changes were described as developmental, these changes were found in the superficial layers. This observation is of value in deciding upon the etiology of a given case, and with other data in my own case, places it in the category of developmental anomalies.

Besides these two main forms of congenital opacities De Wecker describes two other subtypes of the inflammatory variety, viz., those occurring in buphthalmos, and those in consequence of embryonic perforations of the cornea. But the two main types are the ones in which chief prognostic, diagnostic and therapeutic interest centers.

REFERENCES.

Barbacheff: Ophth. Rec., vol. vi, p. 88.
Tepljaschin: Arch. Ophth., vol. xxvi, p. 74.
Steffan: Ibid. Mitvalsky, ibid.
Mager: Arch. Ophth. vol. xxv, p. 265. (Review.)
Carr: Jour. Am. Med. Ass'n., vol. xxv, p. 855.
Bass: Arch. Ophth. vol. xxiv, p. 124.

ANOMALIES OF THE RETINAL PIGMENT EPITHELIUM AND THEIR CLINICAL SIGNIFICANCE.

Presented in the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, Pa., June 1-4, 1897.

BY H. GRADLE, M.D.
CHICAGO.

The homogeneous appearance of the normal fundus of the eye depends in part upon the integrity of the retinal pigment epithelium, which acts as a turbid medium obscuring the structures behind it. Whenever these cells contain no pigment, or less than the usual amount, the choroidal vessels become visible, as in albinos and often in myopic eyes. In the present paper, however, I propose to consider not the absence of pigment, but the appearance due to its irregular distribution.

Structural changes in the retinal epithelium have been demonstrated anatomically by Donders, H. Mueller, Leber, Goldzieher and Fuchs, and were attributed by them to the influence of globular hypertrophies ("Drusenbildung") of the vitreous lamella of the choroid. According to Rosa Kerschbaumer (v. Graefe's *Arch. f. Ophth.*, Vol. 38, I., p. 217) anomalies are found in the pigment epithelium in three-fourths of all eyes of persons over 50 years of age, but are confined mostly to the anterior (ciliary region) and extend only exceptionally toward the posterior pole. According to Kerschbaumer's description some cells increase in size even up to six times their normal dimension, and lose their well-defined contours. Their nuclei multiply and karyokinetic figures appear; degeneration takes place, the nuclei refuse stains, become pale and vacuolated. In some instances the entire cell disintegrates, leaving its pigment in a mass on the basal membrane. Some cells contain an increased amount of pigment, others less than normally, or none at all. The pigment grains themselves may lose their rod-like shape and become round, small and dark brown. Larger round masses of pigment may also be seen between cells. On the other hand, rarefaction of pigment alone may occur without other visible changes in the cells. Sometimes small areas are thus found devoid of coloring matter.

Since these changes incident to advanced age are mostly confined to the anterior part of the fundus, invisible to the ophthalmoscope, or seen only imperfectly, they seem to have been but little studied during life. There are, however, certain easily observed ophthalmoscopic appearances which can only be referred to similar anomalies of the pigment in the retinal epithelium, although these changes have not yet been anatomically demonstrated. I refer to the stippling or granular appearance of the fundus seen commonly around foci of choroiditis or retinochoroiditis. I have also noted the same granular condition during the retrogressive stage of optic neuritis, in which cases it seemed most pronounced in the area adjoining the optic papilla. In purely retinal lesions I have never observed this peculiarity.

The special object of this paper, however, is to call attention to the frequent occurrence of the same appearances in the fundus of children and young people suffering from severe asthenopia. While the healthy fundus of adults presents almost always a homogeneous appearance, I have observed a more or less pronounced stippling or "granular" condition in about 5 to 8 per cent. of young people examined by me on account of asthenopic complaints. Since all transitions occur between a perfectly homogeneous fundus and the extreme granular appearance, such as I shall describe presently, it is obviously impossible to state accurately the frequency with which this anomaly occurs. By limiting myself to those records which are fairly complete in details, and which refer only to well-pronounced appearances in the fundus, I can base this report on the histories of forty cases. These were all instances of what I have described elsewhere as exaggerated asthenopia, ocular discomfort out of proportion to any existing error of refraction or other local anomaly present.

The ophthalmoscopic peculiarities to be described are usually most pronounced in the inferior nasal quadrant of the fundus. Less commonly they extend around the periphery of the entire ophthalmoscopic field and least often are they seen at the posterior pole. It must not be overlooked that in dark subjects the macular region has often normally a slightly stippled appearance, which however, may be considerably exaggerated in these patients.

The peculiar granular appearance of the fundus I can not describe better than by comparing it to a surface covered with a mixture of black and reddish powders with preponderance of the latter. Most of the separate grains are barely within the range of visibility; occasionally a few larger black points are seen sometimes, but less commonly a few white specks of pin-point size can be found. There are often in the same fundus small areas with so little pigment that the choroidal vessels become visible. When the rarefaction of pigment is not so extensive the surface appears, in the words of Loring ("Textbook of Ophthalmoscopy," I, p. 50), not "smooth and hard like a cloth with no nap to it," but "like one that has a plush or velvety feel." Some authors presumably mean this condition when they speak of a "wooly fundus." The condition is always symmetric in both eyes, though sometimes more pronounced in one.

There are probably various reasons why these appearances have been so little noticed in literature. Occurring in eyes not otherwise diseased, they are easily overlooked, especially in the inverted image, unless specifically searched for. Moreover, when not pronounced these appearances would be classed by most observers as within the normal range unless systematic comparisons were made. Yet the infrequency of this granular appearance in perfect eyes and its striking occurrence in connection with fresh choroidal disease suggest positively that it is a deviation from the normal type.

The subjects in whom I have observed this peculiar fundus were all of the neurotic type. In fact the *most striking appearances were found in the most pronounced cases of nervous disturbance.* The most extreme instance I have ever seen was in the case of a boy with very low vision, presumably due to some obscure brain lesion, but without ocular disease, where the fundus could literally be called finely "speckled." As evidence of the neurotic state I have on my records the histories of frequent headaches, chorea or habit-spasm, general restlessness, emotional irritability and sometimes other manifestations of general neurasthenia, such as fatigue on slight exertion, and insomnia. Very often the nervous condition was due to heredity. In other instances it could be referred to improper nutrition during infancy. In some, presumably digestive disturbances were of influence and a few times anemia co-existed, perhaps had preceded it. The ages ranged from 5 to 22 years with preponderance of the period from 8 to 15 years.

All these patients complained of ocular discomfort described sometimes as a burning, rather oftener, however, as an ache, and usually accompanied by more or less headache. While reading intensified the discomfort, most patients complained more or less even while resting the eyes, and indeed, very commonly, much discomfort was noticed at once on rising in the morning. Perhaps this was due to the effect of daylight upon the eye sensitized by darkness, for as a rule these patients were annoyed by strong light of any kind.

No indication was found that the pigment changes affect the acuity of sight. While perhaps a large number of the patients had less than perfect vision, there seemed to be no relation between the lowered vision and the amount of stippling either in the periphery or in the macular region. In no case was there any history of gradual failure of sight. Amongst forty patients (after the correction of all ametropia), V. was 20/20 or over in 10, 20/20 to 20/25 in 12, 20/25 to 20/30 in 12, under 20/30 or over in 3, and under 20/30 in one eye only in 3. In no case was there any intra-ocular lesion found to account for the low vision. In most instances the presumable cause must have been irregular astigmatism. Of the three patients with vision under 20/30, one had M. of 3.5 D.; in the other two no cause could be found for vision of 20/60. In the three instances of one-sided poor sight, the condition seemed analogous to the not infrequent amblyopia found in an eye slightly more ametropic than its fellow.

The refraction in the forty patients was: E. in 9, H. or As. under 1 Dioptry in 24, H. or As. over 1 Dioptry in 3, M. under 3.5 Dioptries in 4.

Very few so-called muscular anomalies were found. Not one of these patients had hyperphoria and none of them had esophoria over 1 degree or exophoria over 3 degrees. In thirty of them the converging power was normal; in ten, more or less reduced.

The asthenopia was of course not of refractive origin in the emmetropic patients, while complete failure to relieve by glasses proved that in fourteen of the cases with low degree of H. or As., the complaints were likewise not dependent on the ametropia present. In nine others correction of the error proved of some benefit, by allowing them to use their eyes with less discomfort, but could not be said to have given complete relief. In only four (three of these had errors above 1 D.) were all complaints stopped by glasses, as long as they were worn. Yet even these cases do not come under the head of ordinary asthenopia due to refractive errors, since their complaints, though really dependent on the ametropia, were so decidedly more intense than we find to be the case in ametropes in good health. I have therefore come to the conclusion that in most of these patients the ametropia was only a complicating factor, and generally one of minor importance.

The pigmentary changes are not necessarily of a permanent nature. I judge so partly by the fact that I have scarcely ever seen a pronounced granular appearance in the healthy fundus of people much over 20 years of age, even when suffering from neurasthenic asthenopia of long duration. Furthermore, I have watched the fundus a number of times during months and once for several years in a patient with patches of localized choroiditis or chorioretinitis and have observed that the stippling surrounding the foci can change or even wholly disappear after the disease has come to a standstill. Six of the juvenile asthenopes in this series of forty I have been able to see for many months, and two of these I re-examined after the lapse of one and a half and six years. In all of these the pigmentary stippling seemed to have diminished to a variable extent. In the one seen after six years it had disappeared entirely, but I must add that in this one it had never been very striking.

The treatment of these patients consisted principally in relative rest of the eyes and general hygienic measures. While abstinence from eyework proved of benefit in most instances, it alone was not fully curative. Indeed, some of the children were brought to me on account of the persistence of their discomfort during school vacation. In some instances the temporary relief from the use of smoked glasses was very striking, more so than I have ever seen in any other form of functional disturbance of the eyes. In all cases in which the correction of existing ametropia gave any relief, even if only partial, the glasses were continued while under observation. For ultimate success, however, I trusted mainly to measures directed against the neurotic condition, liberal outdoor exercise, sojourn in the country, bathing, correction of habits and diet, iron if required and sometimes strychnia. About one-third of the patients lost their eye complaints and headache under this treatment, in the course of months; another third were improved to a variable extent, while the balance could not be watched a sufficiently long time to be recorded regarding the final outcome.

The exact significance of the pigmentary changes described is not made plain by these observations. It must not be forgotten that cases of very similar clinical history, *but with homogeneous fundus*, are not uncommon. On the other hand, the frequent association of stippling and granular appearance with this exaggerated asthenopia of young subjects and its rare occurrence in eyes without complaint suggest a definite relationship. It does not seem probable to me that the changes in the pigment epithelium are the direct cause of the asthenopia. Yet they presumably contribute to make the eye more sensitive. The occurrence of similar changes in these cells around choroiditic foci suggests that they may result from nutritive or circulatory disturbances in the choroid. What role such disturbances play in asthenopia of the type described we do not know. At any rate the greater prominence which the pigmentary changes present in markedly neurotic subjects raises the question whether instability of the central nervous system may not reveal itself by the liability of the retinal pigment epithelium to structural changes. For these cells like the retina proper are embryologically a part of the brain.

DISCUSSION.

Dr. G. E. DE SCHWEINITZ of Philadelphia—I have also observed the cases he has described as if grains of powder were dusted over the fundus. We used to call these cases, when I was in the Hospital, powder-grain fundus; I think Dr. Risley gave it the name. I have not noticed any relation between asthenopia and this fundus condition. In the most pronounced case I ever saw I thought of having a consultation with some of the older men because I thought there might be some unusual change going on of grave importance, which I had never seen. It would be interesting to get one of these cases for hystologic examination.

Dr. HAROLD GIFFORD of Omaha—I would like to ask if Dr. Gradle has not examined a large number of children that complained of nothing whatever and yet presented the same kind of changes in the eye. I think it is purely an anatomic condition and has nothing to do with the asthenopia.

Dr. EDWARD JACKSON of Philadelphia—I think I have noticed something of the kind among school children, at least such cases occur without being noticeably connected with eye symptoms. Two of the most striking cases I recall now occurred in young persons under 20, and the father of one of them presented very much the same appearance.

Dr. CASSIUS WESTCOTT of Chicago—I have observed a number of these cases and have studied the condition chiefly in the children. I did not relieve by correction of the error of refraction and that has made me think the condition accountable for the asthenopic symptoms. I have not as Dr. Gifford suggests examined any number of children without errors of refraction to see whether the condition exists.

Dr. A. B. HALE of Chicago—My dispensary work is done near a large manual training school and I examine a great many children that have nothing at all the matter with them; I have not seen these conditions.

Dr. J. A. LIPPINCOTT of Pittsburg—My attention has been drawn in this direction also and I used to think the changes were pathologic, but I have seen so many cases in which there was nothing of the kind and in which the asthenopic symptoms were quite as pronounced that I began to doubt my conclusions, and then in examining a great many otherwise normal eyes I have found this condition. At the same time I think it is a very important point and we are indebted to Dr. Gradle for calling attention to the subject so that we may investigate it in the future.

Dr. J. B. JENNINGS of St. Louis—Some years ago Dr. Gunn of London, described very minute yellow dots in the retina, which he thought were always present in the cases of asthenopia, but I have never been able to see them even when he tried to point them out; still it may be well to make a search for them.

Dr. FRANK ALLPORT of Chicago—I have had an opportunity within the past four months of observing quite a number of typic Gunn's dots, especially in the region of the macula, among children.

Dr. HERBERT HARLAN of Baltimore—I have seen several cases where there were asthenopic symptoms that were relieved by glasses and some where there were no symptoms whatever.

Dr. GRADLE—I expressed some hesitation at the end of my paper in interpreting the phenomena. I did not say they caused the asthenopia but they probably increased the sensitiveness. I have seen it probably in cases where it did not provoke asthenopia. I always examine patients ophthalmoscopically and amongst many hundred young people examined the appearances did not seem to be present in a striking manner except where asthenopia was present, and that was always so excessive that it indicated a lessened resisting power of the central nervous system, hence I spoke of it as instability of the central nervous system.

EMBOLISM OF THE CENTRAL ARTERY OF THE RETINA.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY C. F. CLARK, M.D.
COLUMBUS, OHIO.

The first instance in which a correct diagnosis of embolism of the central artery of the retina was made by the use of the ophthalmoscope was the classic case seen by that pioneer in ophthalmology, Von Graefe, in 1858, and described by Schweigger a few years later.

While there is a general agreement among ophthalmologists as to the phenomena of complete embolic obstruction of the central artery, the relatively rare instances in which a portion of the retina has retained its vascular supply and continued to perform its functions have been the subject of some differences of opinion among careful observers, and this fact would seem to warrant us in bringing to the attention of the profession such cases as may come within the range of our experience.

Case 1.—On Jan. 12, 1896, I was consulted by Mrs. C. E., aged 51 years, who was referred to me by her physician, Dr. Barcroft of Coshocton, Ohio, on account of the condition of her left eye. She had known of no defect in her vision until nine days before the above date, when suddenly while sweeping, she noticed what she described as a "glimmering" before the left eye and in a few moments the whole visual field clouded over with the exception of a small space near the center. Although not robust, her general health had been good with the exception of one severe attack of malarial fever from which she suffered some twenty years before and occasional mild attacks of the same disease in the spring and fall. She knew of no cause to which she could attribute the disease of the eye.

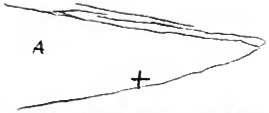
Her vision was R. E. $\frac{6}{6}$—, L. E. $\frac{6}{60}$—, seen only within a limited area near the disc and with this eye she could by the aid of a 4 D. sph. glass read Jaeger 9 with difficulty. The pupillary reaction could not be determined, as she had a few days before used atropia. In the right eye the visual field was apparently normal, while in the left it was irregularly elliptic and extended only from the blind spot to the macula. At a distance of one foot it measured two inches in its vertical diameter and three inches horizontally.

On examination with the ophthalmoscope it was found that the field of vision corresponded with the papillo-macular area, which was normal in color in the midst of a whitish, edematous zone surrounding the disc. The macula which, while not like that of typic, complete embolism of the central artery, presented a marked contrast to the surrounding pale retina and formed the apex of an irregularly triangular island of normal tissue, the base of which was formed in part by the disc. The upper and lower borders of the triangle were formed by vessels, the lower of which seemed to be a vein, while the character of the upper one was difficult to determine, though probably of the same nature. Both this upper vessel and a smaller one which extended some distance into the center of the normal area appeared to emerge from the disc at some distance from the central vessels and could therefore be said to have their origin possibly behind the situation of the embolus. A superficial hemorrhage of considerable size was observed near the margin of the disc about the upper vessel above mentioned and a small one on the vessel supplying the central portion of the triangle. The larger veins of the retina, especially the inferior, were somewhat distended, while the arteries were all quite narrow. No vessel of the so called "cilio retinal" variety could be made out and, indeed, there was ample nutrition supplied to the normal area by other vessels without resorting to the assumption of the existence of such a supply.

Case 2.—Mrs. J. W. M., aged 34 years, was referred to me by Dr. Buckingham of Springfield, Ohio, on Aug. 18, 1896, with the following history: While walking on the street the evening of the 15th, three days before her visit to me she had a fall, which, however, seemed to her of no significance as she caught herself with her hands and did not strike her head, but on awaking the next morning she found that the vision in her left eye was very defective and the field greatly limited. No cause other than the above fall could be discovered, as her general health had been good.

A physical examination by Dr. Rogers revealed a slight, soft, diastolic murmur along the left side of the sternum, heard with maximum intensity in the fourth intercostal space four inches from the medial line and so far to the left as the axilla. The general appearance of the eyes was normal, the pupils responded to light and there was no discomfort excepting that caused by the defective vision and limited field of the left eye.

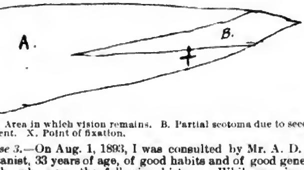
The vision of the right eye was $\frac{5}{5}$, and she read J.1 at 5 to 14 inches. In the left the vision was $\frac{5}{12}$, and the field, which was difficult to measure, seems to take the form of an irregular, acute-angled triangle, the apex of which was at a somewhat eccentric point of imperfect fixation, the center corresponding appoximately with the normal point of fixation, and the base to the temporal side. Outside of this area there was absolute blindness. The portion of retina therefore which retained imperfect vision extended in the form of an irregular triangle from a point near enough to the macula to give vision of $\frac{5}{12}$ to the disc and beyond it in a somewhat irregular zone into the nasal quadrant. This corresponded approximately with what was seen with the ophthalmoscope, namely, that while there was slight, general edema of the retina, an irregular, horizontal zone including the disc and extending toward both the nasal and temporal sides and increasing in width both to the right and left of the disc was fairly clear. Two vessels of apparently somewhat deep origin extended from the disc near its center to the inferior temporal quadrant of the retina, the upper one of which seemed to pass just beneath the macula and formed a rather sharp outline to the grayish edema which was to be seen in the lower portion and to a less degree in the upper portion of the retina. A small, well defined, independent vessel of deep origin could also be seen on the oppposite side of the disc extending into the nasal quadrant. Directing the patient to fix the eye as well as it was possible for her to do I obtained a visual field approximating the form outlined in the following diagram:



A. Area in which vision remains. X. Point of fixation.

The patient continued to enjoy the above vision of $\frac{5}{12}$ with the same visual field for more than three months, when her baby accidentally struck her in the left eye with a child's bow, which, without causing pain or other evidence of traumatism, instantly deprived her of this power and produced a long, narrow, cloudy scotoma in what had been the best portion of her narrow, triangular visual field. On April 16, 1897, when I saw her last, she could with difficulty count fingers at a distance of one or two feet when held so that the image should fall in the nasal portion of the limited field.

The patient, who is an intelligent observer of her own symptoms, drew the accompanying diagram to indicate the form of the scotoma which made its appearance after her recent injury, and it will be seen that it corresponds to what might be expected were an embolus to find lodgment or a thrombus be formed in the small macular artery mentioned above.

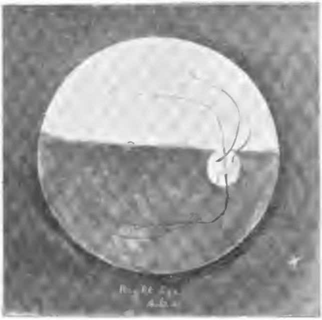


A. Area in which vision remains. B. Partial scotoma due to second accident. X. Point of fixation.

Case 3.—On Aug. 1, 1893, I was consulted by Mr. A. D. S., a botanist, 33 years of age, of good habits and of good general health, who gave the following history: While camping he awoke on the morning of the day before his visit to me with the sensation of a veil over the right eye and with vision defective in the lower portion of the field. He thought the visual field had increased since, but while a rough test revealed a normal outline for the left eye, in the right there was blindness below a horizontal line through or a little above the center of the field. For three or four weeks he had been somewhat indisposed, complaining of pain in the chest. About sixteen months before, he had grippe followed by rheumatism, which did not, however, assume the acute inflammatory form. At one time, while suffering from grippe, he fainted and fell out of his chair. As the result of a physical examination made by Dr. Rankin it was determined that he had a slight cardiac murmur due to roughening which was the result of endocarditis, and as there was a tendency to recurrence of the rheumatic symptoms, he was given appropriate treatment.

His vision in the left eye was normal and the field was good. In the right eye the lower half of the visual field was defective, but the superior half was normal, as also was his central vision when tested at a distance. R. E. 4/3—, L. E. 4/3—. But when attempting to read he was hindered somewhat by limitation of the visual field, which made it difficult for him to quickly find the line beneath the one upon which his attention had been fixed. The general appearance of the eyes was normal and he complained of no pain.

The ophthalmoscopic appearance of the left eye was normal, but in the right was seen a most striking picture. The lower half of the retina presented the usual appearance, while the upper half was white and edematous. The lower border of this area of edema was clearly defined and it extended further to the temporal than to the nasal side. Above, it did not seem to extend to the extreme periphery. The arteries were a little smaller than normal and at the point of bifurcation above and near the disc there was a slight interruption of the line of light reflex which should be seen in the center of the artery.



The most important, and to me the most interesting feature of the case was a short, slightly crescentic red line lying above the apparently normal but well defined macula. This short crescent had its convexity upward, was approximately concentric with the macula and seemed to correspond with, and in fact, to be the upper segment of the cherry-red spot seen in cases of embolism of the main trunk of the central artery. In other words, the sharply defined lower border of the edematous area of the retina passed through the upper portion of the macula, and therefore, it was only at this point that the contrast was noticeable.

On Aug. 4, three days later, the patient detected some improvement in his vision in the defective portion of the field. The superior and superior temporal portions of the disc still seemed slightly swollen. The region of the macula was more evenly red and the concentric red spot above had disappeared. The outlines of the defective portion of the field of vision corresponded with those of the edematous portion of the retina as seen with the ophthalmoscope. (See diagram of retina and field of vision.)

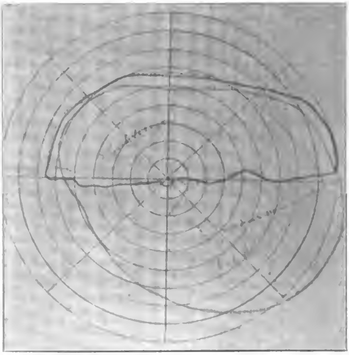
On August 12 the superior portion of the retina had assumed a more pinkish tint, but was still far from normal and there was no improvement in the visual field.

On October 5, sixty-six days after the appearance of the embolism, Dr. Rankin reported that a few days before Mr. S. had an attack of dizziness which he described as peculiar and not at all like that of ordinary vertigo, and his wife stated that he was for a few moments absolutely blind in the right eye. He told Dr. Rankin that on turning his head to one side he had a tendency to continue to turn it. Notwithstanding the above symptoms and marked anemia, and in spite of my remonstrances he continued his work.

On October 13 he stated that the lower portion of letters seemed slightly indistinct, which is in keeping with the fact that the upper portion of the macula was affected, but this indistinctness was not sufficient to prevent him from having vision of 4/4— in each eye improved by the correction of his hypermetropia and low degree of astigmatism to 4/3—, nor from reading Jaeger 1.

The ophthalmoscope revealed some pallor of the optic disc with slight indistinctness of outline at the upper border, possibly indicating very slight swelling. The superior retinal artery was somewhat diminished in size and the line of light in its center was very narrow, indicating marked diminution in its caliber. The dense white of the superior half of the retina was at that time replaced by an almost imperceptible blush of opacity slightly masking the normal pink beneath it. The field of vision had improved and objects could be seen at a point 15 to 20 below the line of central vision.

In June, 1894, I found that the central vision had remained good and there had been decided improvement in the visual field. The light sense was imperfect, but present in the defective portion of the retina.



On July 18, 1896, about three years after the embolism first made its appearance, a careful examination of this patient by Dr. Rogers still revealed normal central vision with a pale disc. It seemed that there was atrophy of the superior fibers of the retina and of the nerve fibers of the upper portion of the disc. The vessels in the superior portion of the retina were small and the retinal tissue was dull in appearance. In the upper portion of the visual field his vision was good. In a broad zone below the center it was dull, while the lower portion was practically blind.

Whether or not in this case the preservation of vision in the macular region was due to the existence of a cilio-retinal vessel is a question which might naturally arise, but I detected no such vessel, and Dr. Rogers assures me that in his recent examination he satisfied himself that none existed. Had there been such a supply I do not think the edema would have followed in so direct a line across the upper half of the macular region.

It is probable that there *never* was *complete* obstruction of the superior retinal artery, but it was sufficient to produce the sharply outlined area of edema which confined itself to the field of distribution of that vessel. In the macular area, however, the anastomosis of the smaller vessels with those of the inferior branch of the central artery was so complete as to preserve all excepting its upper quadrant from the temporary disturbance of function produced by the edema. Had the obstruction ever involved the whole caliber of the artery it is not probable that on the one hand the vision in the superior half of the retina would have been almost completely preserved, or on the other that the macula would have continued to perform its function so perfectly even at the time when the edema was most marked.

The fact that the edema, which in the days immediately after the occurrence of embolism, is usually found to correspond in a general way in its area of distribution with the area which remains blind, is merely an incident and does not stand in a causative relation with the permanent blindness is, I think, demonstrated by this case. It will be remembered that this edema did not extend to the periphery in the superior portion of the retina, while an examination at a later period revealed blindness of the extreme lower portion of the visual field and the ophthalmoscope discovered evidences of atrophy of the retinal tissue of the corresponding region. The lower portion of the upper half of the retina, on the other hand, which was the seat of the most marked edema, recovered almost perfect vision.

One would conclude from this, that whatever may be the temporary effects on vision produced by edema of the retina, the permanent effects in a case of embolism are produced by impairment of the nutrition of the nerve-fiber layer. If this occurs for only a limited period of time, as by cutting off the vascular supply, the nerve fibers do not seem to have power to recover their functional activity.

While the case I have just described is, so far as I can learn, unique in the fact that in it we had a crescentic or partial, cherry-red spot in the macular region, Cases 1 and 2 are of more real interest as belonging to a group which for a number of years has attracted the attention of ophthalmologists owing to the belief on the part of many, that by means of what are termed "cilio-retinal" vessels, the papillo-macular region obtains a blood supply which is independent of the central retinal artery.

In the crosier-like vessels, which in many individuals are seen to emerge apparently from the temporal border of the optic disc at such a depth in the nerve tissue as to suggest their origin in the choroid, and then curve upward and outward to be distributed to the papillo-macular portion of the retina, really belonging to the choroidal system and are not branches of the central retinal artery, we certainly should be able with the evidence afforded by the microscope and the ophthalmoscope in the number of cases of embolism of the central retinal artery which have been recorded, to demonstrate that fact. And if they are merely branches of the central artery, which having their origin at some depth in the nerve head, pass outward to its temporal sheath at a point behind the lamina cribrosa are then reflected toward its center as they emerge, and thus take the form which gives the impression that they come from the choroid, we should also be able to demonstrate that fact. That the question is one of great importance is apparent when we consider the comparative frequency of the occurrence of such vessels and the distinctive form which they assume.

De Schweinitz ("Diseases of the Eye," Ed. 1896, p. 113) states that "in a series of examinations Land and Barrett found this vessel present in 16.7, Veasey in 14.2 and the author [de Schweinitz] in 10.6 per cent." (It is possible that these observers may have included as "cilio-retinal" vessels all vessels of considerable size emerging from the disc at its temporal margin and distributed to the papillo-macular region.)

Dr. W. K. Rogers and the writer have for a few months made notes on this point in all ophthalmoscopic examinations. We distinguished between a vessel appearing near the margin of the disc and turning directly into the retina and one which had its apparent origin beneath the scleral ring and, after being directed toward the center curved again toward the periphery. This latter crosier-like vessel we classed as a "cilio-retinal" vessel, and in the examination of 310 eyes Dr. Rogers found it present in 8 per cent., while the writer in 317 eyes found it in 10 per cent. (Had all the independent vessels of deep origin been included, Dr. Rogers' percentage would have been 27.3 and the writer's 22.3.) What anatomic proof have we that the so-called "cilio-retinal" vessels originate in the choroidal system? In a somewhat extended search of the literature of the subject I have been able to find but one instance, that of Birnbacher (*Archives of Ophthalmology*, Vol. xvi, p. 32), in which the claim that an anatomic examination has demonstrated the presence of such a vessel is supported by what appears to be strong evidence. A plate which accompanies the description of this case would certainly seem to make clear that in this instance, at least, such a vessel did have its origin in the choroid. This was not, however, a case of embolism.

The ingenuity of the theory by which the occurrence of such an anastomosing, or independent vascular branch from the choroidal system explains the preservation of the papillo-macular area of the retina when an embolism has obstructed the central artery, seems to have had a peculiar charm for all who have written on the subject and to have led many observers to accept it without criticism, and whether or not such an anomalous vessel can be proven in any instance to have coexisted with the preservation of normal vision in this area, it is certain that in many instances writers who are generally careful observers, have fallen into the error of adopting this explanation where the evidence is entirely insufficient.

Professor Laquer (*Arch. of Oph.*, October, 1896, Vol. xxv, p. 525) gives abstracts of sixteen cases of embolism of the central artery with integrity of the temporal region of the retina, which he states are all he could find recorded. In addition to these the editor of the *Archives* mentions three other cases which should be added, and I have found two more mentioned in medical journals which seem to have been omitted. These, with the case described by Laquer and the two which I have described above, make a total of twenty-four. In the literature at my command I have been able to obtain somewhat detailed accounts of sixteen of these twenty-four cases; and it may be pertinent to ask how far do the results of a careful study of these clinical cases warrant us in concluding that true cilio-retinal vessels were the means of preserving the integrity of the papillo-macular area of the retina? In answer to this question it may seem interesting, and in view of the claims that have been repeatedly made in favor of this theory, it is certainly surprising to note that in not one instance has the existence of what has been classed as a cilio-retinal vessel been demonstrated ophthalmoscopically. In not one was anatomic evidence adduced to prove that such a vessel was present, and while only four writers claimed the existence of a cilio-retinal vessel, three of these in the context made it apparent that they did not distinguish between a "cilio-retinal" vessel and a macular vessel of deep origin.

In conclusion, I would say that beneath the statement of the time-honored theory that in embolism of the central artery a so-called cilio-retinal vessel serves to preserve the papillo-macular area by virtue of its origin in the choroidal system, we must write "not proven."

THE TECHNIQUE OF RETINOSCOPY.

Delivered in the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1-4, 1897.

BY J. ELLIS JENNINGS, M.D.
ST. LOUIS, MO.

It is only within the past ten years that the value of retinoscopy as an objective test in the estimation of errors of refraction, has been fully recognized. The fact that, after a little practice, the kind and amount of refractive error can be ascertained quickly, accurately and independently of the patient, has made it deservedly popular. This popularity is largely due to the labors of Philadelphia men, particularly of Drs. Jackson and Thorington, and I therefore feel that it is quite appropriate that any additions I may have to offer may receive your friendly criticism.

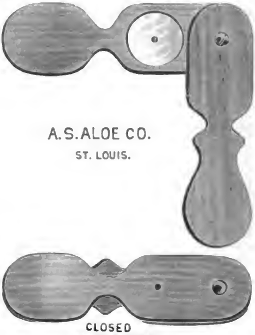
The mirror which I use is plane, 2.2 cm. in diameter, with a central aperture 3 mm. in diameter cut through the glass. My objection to a mirror with the sight-hole obtained by merely scraping away the silvering, is that vision is obscured by the dust which unavoidably collects on the glass and which it is difficult to remove. The annoying reflections from the margins of the sight-hole are obviated by using a very thin piece of glass well blackened about the aperture. The mirror is set in a piece of metal 5 inches long and 1¼ inches wide. Over this is fastened another piece of metal which, when closed, protects the mirror from dust, and when open is used as a handle on the principle of a lorgnette. When not in use the instrument may be folded and conveniently placed in the vest pocket. Either the right or left eye may be placed opposite the central aperture by merely reversing the piece of metal in which the mirror is set. (See Fig. 1.)

The light.—In my experience the most brilliant and satisfactory light is obtained from the Argand burner or the Welsbach. Over this is placed Thorington's asbestos chimney, to exclude all light except that which comes through the largest openings of the revolving discs. The light is placed above the head of the patient and just far enough back to leave the eyes in shadow. My objection to a point of light from 5 to 10 mm. in diameter placed close to the eye of the surgeon, as taught by Jackson, is that the operator's movements are greatly restricted, and there is difficulty in focusing the light on the eye of the patient.

I have made careful tests by both methods and find one as accurate as the other. I therefore prefer the light placed over the patient's head, as it gives a more satisfactory reflex and at the same time enables the surgeon to study movements at a distance of from four to six meters if necessary.

Distance from the patient.—I always work at a distance of one meter from the patient and add a —1 D. sphere to the lens, which neutralizes the refractive error. The method of viewing the reflex at from four to six meters, as proposed by Randall, while accurate, is inconvenient, on account of the difficulty of focusing the light on the eye.

On the other hand, the determination of ametropia by measuring the variable distance of the surgeon from the patient, as taught by Jackson, is open to the objection that an error of one or two inches in the measurement would seriously affect the accuracy of the result.



Retinoscopy Mirror.

Apparatus for placing lenses in front of the patient's eyes.—For this purpose I have had an instrument constructed, called a skiascope, which was described in the November, 1896, issue of the *American Journal of Ophthalmology*. We all know how difficult it is, especially in children, to get a trial frame which fits properly and keeps the lenses accurately in front of the eye. We also know how fatiguing it is and how time is consumed in making the necessary changes in lenses. With the skiascope all these objections are overcome; the chin rest and stand can be so adjusted that the pupil is accurately centered and the patient made comfortable. The surgeon, seated one meter distant, uses his right hand to hold the mirror, and with the left controls the wheel which rotates the lenses in front of the eye. A disc close at hand indicates the strength of the lens presenting at the sight-hole. The instrument is absolutely under the control of the operator and saves fatigue and time, much to the satisfaction of both surgeon and patient.

DISCUSSION.

Dr. EDWARD JACKSON of Philadelphia—Dr. Jennings' paper and instrument illustrates that there are a great many different ways of doing the same thing, and that one always finds the way he is accustomed to the most satisfactory. Taking up some of the points mentioned, first in reference to the sight-hole of the mirror, the objection that when the glass is left dust collects on it and is difficult to remove, I have recently met by placing back of the sight-hole a thin piece of glass like a cover-slip and cementing it on, so that it is just as easy to wipe and keep dust off the mirror as to keep it off our glasses.

In regard to protecting the unused eye from light, it is sometimes a little help to close the eye that is not back of the opening, but more of the time it is a help to keep it open, particularly when you are trying to find where the light is and turn it in the proper direction. There are times when I find myself closing one eye, but mostly I work with both open. As to the position of the light over the patient's head, that is the place for it, or back of the patient, with the concave mirror, and it is also moderately satisfactory with the plane mirror when you work at the distance of one meter or over. The whole question of light depends upon having the light area as definite as possible, and no matter what the source of it the image will not be definite unless it is focused on the retina; and in order to be so focused it must be situated at the distance for which the eye is adjusted. In making the test, when we get to the point of reversal, we have the focus of the patient's eye at our own; and in order to have the light source focused on the patient's retina at the same time, it must be near the position of the surgeon's eye.

If you attempt to work closer than one meter, placing the light over the patient's head is not satisfactory. If you come to one-third of a meter there is one and one-half D. of inaccuracy, and that greatly lessens the value of the test. For many eyes the one-meter distance is fairly satisfactory, and if you take it as routine method the light above the patient will do. But if you limit your use of the test to this method, you restrict its value. A small point of light, too, is not satisfactory if placed over the patient's head, but if brought close to the mirror it gives a more delicate test.

I have used a disc, not one so well arranged and complete as this of Dr. Jennings. But after using it for some months I went back to the trial set. I prefer a small trial set kept right at hand. I find it, on the whole, more convenient than any form of instrument or disc.

Dr. H. V. **WUERDEMANN** of Milwaukee—The first instrument brought to this country was in 1887 by Donn of Oxford. In 1888 Burnett of Washington showed before this Section a disc skiascope, and about a year later I made a modification of it. Wood was the next man to put in an appearance with an instrument, which he uses with great satisfaction, based upon the same principles as those of Dr. Jennings. I would personally object to the size of this instrument on account of the space it would take up in the dark room, and in the examination more time is taken than is necessary.

Dr. J. E. **JENNINGS**—I think the idea of an extra piece of glass behind the mirror, suggested by Dr. Jackson, will be a very convenient thing, and we can thus keep the glass perfectly clean without rubbing off the silver. In regard to Dr. Würdemann's remarks, the hand skiascope is a very convenient and useful instrument, but an objection to it is that the patient controls the movement of the instrument and you are not always sure which aperture they are looking through, whereas my instrument records the number of the lens in front of the sight-hole and is under the control of the surgeon.

A METHOD OF EMPLOYING KANGAROO TENDON IN THE OPERATION FOR SHORTENING OCULAR MUSCLES.

Presented to the Section on Ophthalmology at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, June 1-4, 1897.

BY JOHN O. McREYNOLDS, B.Sc., M.D.
DALLAS, TEXAS.

Without attempting to review the subject of muscle shortening I will briefly present a method which has been quite satisfactory in my experience on account of the short time required for its performance, its freedom from pain, and the accuracy with which any degree of heterophoria may be corrected. It may also be successfully employed as an auxiliary in those cases of marked strabismus in which complete tenotomies alone will not entirely correct the deviation. The method is as follows: With broad fixation forceps provided with teeth sufficiently long to engage all the ocular tissues down to the sclera, grasp conjunctiva, capsule of Tenon and tendon of ocular muscle in such a way as to produce a loop of tendon. Then fix the loop thus formed by a single suture of kangaroo tendon embracing the ocular tendon. Tie the thread thus employed and leave it to be absorbed. In case there should be a desire to have the kangaroo tendon buried beneath the conjunctiva short incisions through this membrane will allow the thread to sink out of sight beneath the conjunctiva. The operation can be made in less time than one minute, involves no pain or subsequent discomfort and will correct with precision any ordinary degree of heterophoria.

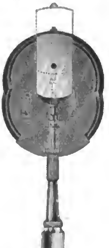
A NEW OPHTHALMOSCOPE.

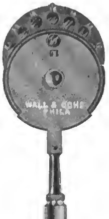
Presented in the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY JOHN WELSH CROSKEY, M.D.
ATTENDING SURGEON TO THE WILLS HOSPITAL,
PHILADELPHIA, PA.

In the construction of this ophthalmoscope the object desired is to obtain a sufficiently large series of lenses in the most compact form and to permit of all the lenses being used without removing the instrument from the face.

When it is taken into consideration that to use an ophthalmoscope properly the accommodation should be relaxed, these advantages will be appreciated. The size of the instrument can be judged from the illustrations, which are two-thirds actual size, a point which will be valued by oculists who carry their ophthalmoscopes with them.





The ophthalmoscope itself consists of two discs, one for convenience called the lower disc, containing the weaker plus and minus glasses, ranging from + 1 to + 6 by single diopters and from — 1 to — 8 by single diopters; the upper disk containing the stronger lenses, ranging from + 8 to + 20 by alternate diopters and from — 10 to — 24 by alternate diopters.

It will be noticed that the discs are used independently and should the fundus require a stronger lens to explore it than is contained in the lower disc, it is not necessary to remove the ophthalmoscope from the eye; but, by simply pushing the mirror upward with the forefinger, so as to be opposite the lenses in the upper disk, as shown by the dotted lines in the illustration, the examination may be continued.

The sight-hole in the mirror is two millimeters in diameter, as it is found that a small sight-hole permits of a more satisfactory examination of the fundus through a small pupil.

A NEW OPHTHALMOSCOPE.

Presented in the Section on Ophthalmology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY J. L. BORSCH, M.D.
PARIS, FRANCE.

In this instrument the first noticeable feature is the construction and placing of the mirror; this not only tilts but also revolves about its own axis. The second feature is that the body of the instrument is so constructed that it can be revolved around its own axis carrying the mirror with it. This gives the mirror a third motion, first, tilting; second, revolving around its own axis; third, revolving around the axis of the body of the instrument, whereby the user can place the mirror at any desired position while the arrangement of the lenses remain undisturbed.

There are two lens discs effectually covered and protected from dust and handling, one containing the following lenses: 1; 2; 3; 4; 5; 6; 7; 8; 9; 10; 11; 12 convex, and 0.50 and 13 concave. The other disc contain: 1; 2; 3; 4; 5; 6; 7; 8; 9; 10; 11; 12 concave and 0.50 and 13 convex.

These combined produce seventy-six numbers as follows: 0.50; 1; 1.50; 2; 2.50; 3; 3.50; 4; 4.50; 5; 5.50; 6; 6.50; 7; 7.50; 8; 8.50; 9; 9.50; 10; 10.50; 11; 11.50; 12; 12.50; 13; 14; 15; 16; 17; 18; 19; 20; 21; 22; 23; 24; 25 both in concave and convex.

The second ophthalmoscope has the same arrangement of the mirror, viz., tilting and two rotary motions, only there is but one disc and a quadrant. The former contain the following lenses: 1; 2; 3; 4; 5; 6; 7; 8 concave and 1; 2; 3; 4; 5; 6; 7 convex, while the latter contains 0.50 and 16 concave, and 0.50 and 16 convex. The disc and quadrant combined produce the following numbers: 0.50; 1; 1.50; 2; 2.50; 3; 3.50; 4; 4.50; 5; 5.50; 6; 6.50; 7; 7.50; 8; 8.50; 9; 10; 11; 12; 13; 14; 15; 16; 17; 18; 19; 20; 21; 22; 23; 24 concave and 0.50, 1; 1.50; 2; 2.50; 3; 3.50; 4; 4.50; 5; 5.50; 6; 6.50; 7; 7.50; 8; 9; 10; 11; 12; 13; 14; 15; 16; 17; 18; 19; 20; 21; 22; 23; producing sixty-four (64) numbers in all, the same as produced by the Loring ophthalmoscope.

55 Rue Cherché Midi.

ANTINOSIN IN THE TREATMENT OF DISEASES OF THE EYE AND EAR.

BY W. FRANKLIN COLEMAN, M.D.
PROFESSOR OF OPHTHALMOLOGY IN THE POST-GRADUATE MEDICAL SCHOOL, CHICAGO, ILL.

For some time I have felt the need of an antiseptic remedy which would be efficient, and non-irritating to the eye. While formalin is one of our best, if not the best of antiseptics, a solution of even 1 to 5,000 causes considerable pain. The action of sublimate is very superficial, and clinically unsatisfactory. Boric acid and iodoform are only very slightly antiseptic. I have also desired to get some of the properties of iodin, the tincture of which is well known to be curative when applied to ulcus corneæ; on account of its irritative effects its usefulness is very limited.

I have recently used antinosin in a considerable number of cases (both in my private and clinical practice) of catarrhal, palpebral and follicular conjunctivitis, phlyctenulæ, ulcus corneæ, blepharitis marginalis, and also in otitis media purulenta. In a 1 to 2 per cent. solution it does not cause pain in the eye or ear, the patient rarely complaining of any unpleasant sensation. Antinosin is the sodium salt of tetra-iodo-phenol-phthalein. It is a dark blue amorphous powder, readily soluble in water and alcohol, odorless, non-toxic and non-irritant. It makes a purplish solution in water. The stain caused by very strong solutions can be readily removed by washing.

I refer to a few cases taken at random, which were treated by antinosin:

Case 1.—A. G., aged 48 years, had been treated for a long period on account of trachoma. The palbebral conjunctiva was smooth, but the patient complained of great sensibility to light and inability to read. Various applications were used, such as boric acid powder and massage, red oxid of mercury and massage, weak solutions of nitrate of silver, etc. These afforded very slight relief. A 1 per cent. solution of antinosin dropped in the eyes, t.i.d., afforded him in a few weeks, comparative comfort, relieved the photophobia and enabled him to do a moderate amount of reading. It also acted promptly in relieving several attacks of recurring ulcers of the cornea.

Case 2.—Miss G. B., aged 8 years. A case of long standing phlyctenular conjunctivitis, accompanied by intense photophobia. After using several of the classical remedies with very slow improvement, recovery was very much hastened by a collyrium of antinosin, 1 per cent. t.i.d.

Case 3.—J. H. D., aged 24 years. Palpebral conjunctivitis. The conjunctiva presents a velvety surface. There is also a blepharitis marginalis. There is a history of inflamed eyes for past five years, during which time medicine had afforded him little relief. A quarter of a diopter of astigmatism in each eye was corrected; the red oxid ointment, and argentum nitrate, 2 per cent. were applied for a month with little improvement. Under the use of antinosin, t.i.d., and massage, the case went on to recovery in a few weeks.

Case 4.—J. R., aged 34 years. History: Eyes have always been weak and inflamed. There is follicular conjunctivitis of the reflex folds and palpebral conjunctivitis, the ocular conjunctiva much injected. Glasses were prescribed, nitrate of silver, 2 per cent., applied on alternate days for one month, and tincture of iodin 1, to 3 per cent. of glycerin proved to be too painful for application to lids. Antinosin, 2 per cent., was applied t.i.d., and massage to lids once a day. In three weeks the eyes had very much improved and much more satisfactorily than under previous treatment.

Case 5.—Mrs. K., aged 71 years, has chronic palpebral conjunctivitis, for which I had previously treated her with the red oxid of mercury ointment and powdered boric acid and massage alternately, with a satisfactory result. A relapse occurred and antinosin, 2 per cent., and massage, were used daily for ten days, and the recovery was more rapid and complete than under previous treatment.

Case 6.—W. C., aged 40 years, complains of inflammation of the eyes for the past two years, which has been particularly troublesome for the past three months. There is palpebral conjunctivitis in both eyes and tarsal tumors of the right upper lid. Treatment: Tumors removed and curetted; antinosin 3 per cent. applied. Repeat antinosin, 1 per cent. t.i.d. After two months' treatment the lids were normal.

Case 7.—Miss S., aged 40 years, seamstress. Eyes have been inflamed off and on for six years past. The bulbar conjunctiva is much injected; chronic palpebral conjunctivitis. Palpebral conjunctiva is very red but smooth. Glasses were prescribed, and antinosin, 3 per cent. In three weeks the lids and eyes were much improved but still inflamed.

Case 8.—K. T., aged 4 years, when two years of age had a left mastoid abscess, for which an operation was performed by a surgeon. During the past week there has been otitis media purulenta of the right ear, and swelling over the left mastoid at the site of the previous operation. The swelling fluctuates on pressure and is exquisitely sensitive. Diagnosis: Mastoid caries and abscess. Incision was made and sequestrum and caries were found in the antrum, which was thoroughly curretted down to the dura. The wound was packed and covered with nosophen gauze, and bandaged. The right ear was treated with hydrogen peroxid and 2 per cent. antinosin and Politzerization daily. In six weeks the discharge had completely ceased in the right ear, and hearing improved from loud voice close to ear, to whisper at twenty feet. The left mastoid completely healed, and the hearing of left ear improved to ordinary conversation at ten feet. The general health is better than it has been during the past year.

Many other eye and ear cases have been treated with good results, but these few suffice for illustration.

SOCIETY PROCEEDINGS.

Chicago Ophthalmological and Otological Society.

Regular meeting held Dec. 14, 1897, in the Stewart Building.

Dr. Montgomery in the chair.

There were thirty visitors and members in attendance.

The minutes of the previous meeting were approved.

The applications of Drs. J. F. Fulton of St. Paul, Minn., Frank Allport and Wm. L. Ballenger of Chicago, were referred to the Committee on Membership.

On motion of Dr. Starkey, a committee consisting of Drs. Gradle, Starkey and Wilder, was appointed to confer with the editors of the Journal of the American Medical Association and the *Ophthalmic Record* as to the publication of the minutes.

Dr. Starkey opened a discussion on the

USE OF X-RAYS IN OPHTHALMOLOGY,

as follows: We all know that certain substances which are transparent, or nearly so, to ordinary light, are opaque to the X-rays, and *per contra* certain substances opaque to ordinary light are more or less transparent to the X-ray. In general, it may be said that the greater the density of the object, the greater its opacity to the X-ray, and it may also be said that the higher the vacuum tube the more transparent are bodies to the X-ray. Starting with this knowledge we can readily see that pieces of metal will cause a denser shade from the X-ray than bones, if a sufficiently high vacuum is used.

As far as I am aware, the case I shall report is the first one ever successfully skiagraphed in Chicago as to the location of a foreign body in the eye. It can be seen that it is necessary in the majority of instances that the skiagraph should be taken from two positions, from the side of the head and from the front, and by means of these two skiagraphs the body can often be definitely located. Dr. Sweet of Philadelphia has invented a plate holder and indicator which I had hoped to show, but am not able to do so. The tube now used is one made by the Queen Company, which overcomes the difficulty of getting a proper vacuum. This tube is arranged with a chemical and a shunt which controls the vacuum.

The first patient is a male 31 years of age, who was struck in the left eye on June 28 with a piece of metal. He was seen the next day, when the lens was found opaque so that nothing could be seen within the eye. The eye quieted down and he was discharged from the hospital, but in August the eye began to soften and it appeared that it was going to be destroyed. On August 20 a skiagraph was taken and it showed definitely that he had a large piece of metal in the eye. An attempt was made to extract the bit of iron with a strong electromagnet, but was unsuccessful, and the eye was removed.

The second case was seen October 28, male, struck in the eye with a piece of metal. A hole in the cornea, and iris and lens opaque. The next morning a skiagraph was taken, which showed the presence of a foreign body in the eye. An unsuccessful attempt was made to remove the steel, although it was only forty-eight hours after the accident. The eye was removed and a piece of steel imbedded in the blood clot, so that a magnet could not affect it much.

Dr. Starkey showed many interesting skiagraphs of the bones of the head and of foreign bodies in different parts of the body.

DISCUSSION.

Dr. Casey A. Wood—My experience has been very disappointing with the X-ray. Two or three weeks ago a man appeared in my office with, presumably, a foreign body in his eye, but the patient refused to have a skiagraph taken because he feared untoward results. It certainly looks as if with improved methods and short exposures we may expect some benefit from the use of the X-ray in ophthalmology in the future.

Dr. Hale—My experience, which is limited to one case, has been very disappointing, but I am also inclined to think that it was due to imperfect apparatus.

Dr. Starkey, in closing, said that the exposure is never longer than eight minutes with the proper vacuum tube.

Dr. K. K. Wheelock of Fort Wayne, Ind., read a paper entitled

TROPHO-NEUROTIC KERATITIS.

My attention was first called to this class of cases in March, 1887, when A. F. K., aged 55 years, a farmer by occupation and German by birth, consulted me with an attack of herpes zoster ophthalmicus of the right eye. The following I transcribe from my note book: Large ulcer on cornea at upper, inner segment; excavation shallow. Patient complains of a cold sensation in the eyeball as though the eye were a ball of ice. Anterior chamber one-fourth filled with pus, and iris bound down to capsule of lens leaving pupil the size of a pinhead. Patient a strong, healthy man, but pain had reduced him very much. The most complaint was on account of a sensation of continuous cold in eyeball. Ulcerative area had extended at next visit. The entire cornea is anesthetic. Faradization is used, and the cornea subsequently tested, when the sensibility is found to have returned. At next visit corneal sensation diminished. Faradization again employed. After fourth seance with faradization sensation remained in nearly normal state. Current had been applied from five to seven minutes over closed lids. There seemed to be no difference which pole was applied to neck. When sensation began to return to cornea the ulcer began to diminish in extent and depth. Ulcer did not penetrate into anterior chamber, and got well with an eschar. Three points in this case impressed my mind. 1. The diagnostic significance of corneal sensibility. 2. The value of faradization in such cases as presented subnormal corneal sensation. 3. The pathology of herpes zoster ophthalmicus centering in the Gasserian ganglion. After this I gave much attention to testing corneal sensibility.

In January, 1889, Charles F. K., aged 39 years, German, machinist, was referred to me by Dr. M. F. Porter of Fort Wayne, with the statement that patient had gotten some sand in his right eye while engaged in his work. The notable features were slight lachrymation, very slight photophobia, no pain; simply a sense of irritation. Inspection showed a scarcely perceptible injection at sclerocorneal junction, no foreign body on cornea or conjunctival surface. The upper outer segment of the cornea was roughened as though it had been picked in many places with a minute sharp needle. The statement of the physician that the eye looked as if it had received a "sand blast" could be readily credited, only there was no history of such an accident. I tested the cornea with a spill of cotton, twisted hard, and found the cornea practically insensible over the area of roughening, while over the unaffected five-sixths of the cornea the sensibility was noticeable, but very much reduced, the reflex being lost: T. minus, pupil contracted. Treatment continued about one month. On February 19 notes show that the corneal reflex had returned. T. —2, and the roughened area was smaller in extent and less marked in point of apparent roughness. Treatment had been strychnia, quinin and arsenic and electricity systemically, while locally the usual cleansing solutions were applied. On June 23, 1893, Dr. T. J. Dills, then my partner, enucleated this eye, which is here submitted.

Dec. 4, 1895, Henry L., aged 55 years, farmer by occupation, German, consulted me with the following history: Four weeks before while hauling corn fodder from the field the wind carried something into his left eye. He had some pain at the time, and had to rub the eye and, for further relief, used chamomile poultices, which relieved him of the severe pain. He has suffered from occasional attacks of neuralgia of head for years. The last attack of neuralgia was ushered in by a chill, but he had no return of the chill.

He never suffered from digestive disturbance, but has suffered much from head pain, which always began over left eye. Years ago the pain would last for two or three days, but latterly it would pass off after a sleep of half an hour. Examination showed R. E. S. $^{20}/_{20}$; L. E. S. fingers at four feet, slight injection of sclerotic; cornea rough over outer third and center; reflex abolished as shown by touching with cotton spill; T. minus; cornea looked as though fine sand had been dusted over it. Under strychnia, arsenic and quinin, hot fomentations and boracic acid for a period of ten weeks, he recovered with perfect sight and only a fine nebulous eschar.

February 15, 1897, E. F. C., aged 31 years, electric engineer, consulted me for the purpose of having a foreign body removed from right eye. He had already visited an experienced ophthalmologist, in Pittsburg, who informed him that there was a solution of continuity on the cornea, but no foreign body was present. A drop of cocain was employed and patient went about his work of inspecting some mechanical devices in the city. He did not note the irritation again till next morning, when he arrived at Fort Wayne. He then called at my office. Inspection showed no injection at sclerocorneal junction. Very slight photophobia; pupil contracted; a roughening of epithelium at inner upper quadrant; T. clearly minus 1; no sensation over roughened area and practical abolition of corneal reflex when tested over remaining clear corneal area. With the glasses which he was wearing: R. E. S. $\frac{20}{40}$; L. E. S. $\frac{20}{15}$. Under treatment with strychnia hypodermically, faradization and hot compresses, he recovered in twelve or thirteen weeks. His functional examination showed R. E. S. $\frac{20}{70}$; + 4 D. $\frac{20}{30}$; L. E. S. $\frac{20}{30}$; + 4 D. $\frac{20}{20}$; hyperphoria 2° which had already been corrected by prisms.

Another case is characteristic of these three and I will omit details.

The second case detailed and the first of trophoneurotic keratitis series passed out of my hands because my acquaintance with the prognosis was not sufficient to establish either a maximum or a minimum time during which treatment must be carried on. The enucleation of the eye by my partner, Dr. T. J. Dills, recalled the history of the case. The series presents the following features common to all: Loss of sensation in area of corneal involvement; subnormal sensibility; not total loss of secretion over area of unaffected cornea and abolition of corneal reflex; tension variable, but always minus; contracted pupil; slight pain, if any; slight irritation and then always as though a foreign body were in the eye; little or no circumcorneal injection. The time over which active therapeutic measures should be employed is ten to fourteen weeks. These cases have all gotten well with good vision and a very slight nebulous eschar.

The name trophoneurotic keratitis is distinctive and should be adopted for the class of cases which I have described, because the name is significant of the organs involved and points to the trophic fibres of the Gasserian ganglion as the seat of lesion. The name "neuroparalytic" should be abandoned, except in cases where gross lesion of the brain is present, or the ganglion is involved *en masse*, or when, in the presence of evident involvement of the trophic fibers, there is also a general lesion of the entire ganglion, as shown by loss of sensation throughout the whole distribution of the fifth nerve. Such a case as referred to in the last division I have seen as a result of periostitis of the petrous portion of the temporal bone and due to inherited syphilis. The case was that of a little girl, 10 years old, in which the trouble was symmetric. But only the right cornea had undergone central ulceration with perforation. In this case so profound was the anesthesia that a tooth had been extracted without pain, and the incident was referred to as indicating great heroism on the part of the little patient. Trophoneurotic keratitis differs in its pathology from keratitis e lagophthalmo in that in the latter condition the lesion of the cornea is the result of exposure from an uncovered cornea together with general loss of resistance on part of all the tissues. In trophoneurotic keratitis the lesion is found under the covered cornea. Snellen's theory of exposure and mechanical irritation is not tenable in this class of cases. We must also differentiate from keratitis malacia. We have all seen cases of hemi-anesthesia of the face in which there has been no desiccation or ulceration of the cornea. I am disposed to think that the sympathetic fibers supplying the Gasserian ganglion play a very important rôle in the nutrition of the cornea. The cases which Noyes refers to as "superficial keratitis" of malarial origin have all the earmarks of the cases which I have described, and he, together with all authors, including Von Graefe, has failed to distinguish between the gross involvement of the ganglion and the involvement of the trophic fibers alone. Von Graefe described those cases but did not recognize the influence of the trophic fibers. De Schweinitz in "Diseases of the Eye," last edition, describes the trophic and neuroparalytic form, and causally groups them under "neuroparalytic" disturbances of the cornea. Fuchs, in his admirable work, refers to the probable trophic origin of certain corneal ulcers. Schmidt Rimpler in his third German edition of "Ophthalmology and Ophthalmoscopy," translated by Roosa, comes very nearly to the exact truth in his opening sentence on the subject of keratitis neuroparalytica. He says: "The form of keratitis which develops in paralysis of the trigeminus may correspond entirely to the neurotic form in its appearance and course." Finally, Meisner and Schiff have shown experimentally that the characteristic inflammation known as keratitis trophoneurotica occurs when the central fibers of the Gasserian ganglion are divided.

In case of paralysis of seventh when the cornea is not covered or even swept except by extreme contraction of superior rectus and inferior oblique we yet have no evidence of desiccation.

DISCUSSION.

Dr. WILDER—I have a case just recovering which has been under treatment for fifteen weeks, a case of obstinate superficial ulceration of the cornea, gradually involving the whole surface. Everything I could think of has been tried, cauterization with nitrate of silver, carbolic acid and galvano-cautery, and the only relief given him was by applying absolute alcohol. This case is probably one such as the author speaks of. Possibly all such cases are in a sense dependent upon some lesion of the trophic centers rather than of the trophic nerves in the Gasserian ganglion. The cause may be malarial poisoning, in which case the ulcers would assume the peculiar dendritic form. All such cases resemble and are often associated with herpetic efflorescences in other places, and should be distinguished from true herpes zoster, which is a more serious affection. A point of interest which the Doctor brings out is the diminution of sensation.

Dr. COLEMAN—I rise to mention one method of treatment to relieve the pain. In two recent cases in which the corneal ulceration was a part of an attack of herpes zoster the intense pain was relieved, but only temporarily, by large doses of chloral, morphin and quinin, but it was permanently relieved by sodium salicylate.

Dr. GRADLE—I wish to call attention to the sharp distinction that there really is between ordinary herpes and herpes zoster. The dendritic form, as mentioned by Dr. Wilder, can begin as corneal herpes, and I have seen two such cases this year. In these cases there is no diminution in sensibility. I have seen two instances of corneal involvement in the course of herpes zoster, but in neither case was the ulceration quite as important as the keratitis, which was diffuse. Many of these cases are followed by very serious consequences. One of my cases was followed by paralysis of the rectus muscle. The question of the influence of trophic nerves on the cornea is open to doubt; in fact, the nerves themselves are not proven, and it is still in doubt whether the keratitis arises from a disturbance of nutrition or from the presence of foreign bodies.

Dr. PINCKARD—The paper reminds me of a case I now have under treatment, which while not neuroparalytic, perhaps resembles such cases in some respects. Some four weeks ago I was called to see a lady about 70 years old who had an herpetic eruption on the outer part of the upper lid. There was marked edema of both lids and conjunctiva, accompanied with redness and considerable pain. Later there appeared herpes on the side of the nose and temple. My fears were for the cornea, which I carefully watched. A curious change took place. The whole corneal surface became hazy, the haze being more marked at the periphery, not in the center. At the same time the cornea became anesthetic. There was and is still some circumcorneal injection, but it is not very great. There has been no pain in the eye, nor has a vesicle formed on the eye. It seems to me that this condition is a true neuropathic keratitis, whether paralytic or not it is hard to say. The herpetic spots on the face have healed, but no change has taken place in the cornea.

HOLOCAIN.

Dr. HOTZ—At our meeting in October I read a brief report of my observations with holocain. Dr. Würdemann wrote me that his experience had been somewhat different, and suggested that we bring up the matter for discussion at this meeting. At the October meeting I stated that holocain was a very prompt, quick-acting anesthetic, but seemed to me not to penetrate deep enough to make it of value for more extensive and deeper operations, especially one involving the opening of the eyeball. Since that time I have used the remedy considerably and the results are about the same.

Dr. WÜRDEMANN followed Dr. Hotz in the discussion and said: "Würdemann and Black have used holocain successfully in the following cases: Six cataract (simple) extractions, three cataract extractions with iridectomies, three cataract discissions, six iridectomies, eleven tenotomies, three tenotomies with advancement, six canaliculotomies, four chalazia, one sarcoma of conjunctival limbus, one pterygium, one curettement of corneal ulcer, two cauterizations of corneal ulcer, a number of foreign bodies in conjunctiva and cornea, as an instillation before the use of irritating medicines such as silver, bluestone, alum, iodin, etc., and direct application of electrode to corneal and conjunctival surfaces. The anesthetic qualities of holocain equal those of cocain, are no more irritant and excel cocain for operations on the bulb in the following: Its action is quicker and more lasting; it more thoroughly anesthetizes the iris and deeper structures. It more thoroughly anesthetizes inflamed surfaces; the anesthesia may be indefinitely prolonged; the cornea does not desiccate under its use; it does not affect the tension; it does not act on the pupil or accommodation; it does not interfere with the nutrition of the tissues but rather increases their blood supply and hastens healing; its solutions are antiseptic; it is already proportionately cheaper. The only disadvantage in the substitution of holocain for cocain for anesthetic purposes is that bleeding is more free under holocain. Although holocain possesses these distinct advantages over cocain when applied as a pure anesthetic, it has not and probably will not entirely supersede the older medicament.

Dr. Hotz—I can not quite understand on what ground Dr. Würdemann claims that the absorption of holocain is better than that of cocain. If I am correct, the absorption is a sort of osmotic process and has nothing to do with the circulation. We know that cocain combined with atropin is often more readily absorbed than atropin alone, so that cocain seems to increase the absorption. The pain from the application of holocain is most intense in a 1 per cent. solution and the after-effects last for hours. One great advantage of the drug is that it will keep and does not undergo any chemic or bacteriologic change.

On motion the Society adjourned. C. P. Pinckard, Secretary.

Chicago Academy of Medicine.

(Concluded from page 219.)

Regular Meeting, Nov. 12, 1897.

A. E. Baldwin, M.D., in the Chair.

CHOICE OF OPERATION IN AMPUTATIONS AT THE KNEE JOINT.

Dr. J. B. Murphy—The technique of the operation is not so difficult and requires very much less consideration than the points brought out by the preceding speaker, namely, the position of the scar after the operation, and the ability of the patient to wear with comfort an artificial limb. These are the important facts. Here amputations for the purpose of using the stump for pressure, can be made only where we retain a portion of the leg and knee joint the same as we retain the posterior aspect of the os calcis in operations on the foot, or where we produce talipes equinus in an exaggerated degree by resecting a portion of the foot and producing osteal union between the portion of the foot preserved and the tibia. These points can all give support when pressure is brought upon the stump. Pirogoff's operation is the ideal amputation of this character, as it so arranges the stump as to carry the weight of the body on the dense tissues of the heel. It is well known that when we produce a talipes equinus of extreme degree, the limb is not capable of carrying the weight of the body so well, and the patient subsequently suffers a great deal of discomfort. As to the line of amputation, I have always felt that amputations through the knee joint was much more serious than one above or below the joint; that is, making a knee-joint amputation, retaining the articular surface with or without patella, is a much more serious matter than amputating the leg above the articulation. When it is made above the knee joint I feel that we should select a position where the bone is about the normal size of the shaft of the femur; that is, we should go two and a half inches above the articular surface, so that we remove at the time of the amputation the flanging enlargement of the lower end of the femur. Then we have a stump to which we can attach an artificial limb without any difficulty; the pressure with an artificial limb does not come on the end of the stump but more on the side, except in the cases above mentioned. Now comes the question, how shall we make the line of incision so as to relieve the cicatrix from pressure and irritation? Furthermore, how shall we make the incision in the skin and superficial muscles? How shall we make the incision in the deeper muscles and periosteum? If we make it in the same line, when we have union we will have a scar direct to the bone and the patient will suffer from periosteal irritation. If we amputate the limb through the condyles we can not make a periosteal flap to cover the end of the bone. It is impossible to preserve periosteum in that position; it therefore can not be brought over the flanging end of the bone. In order to cover the end of the bone with periosteum we must remove it above the expanding portion of the femur; one of the desirable methods in amputations in any position where there will be pressure on the end or side is to cover the bone with periosteum. True, when we make an amputation through the condyles and preserve the patella, taking off its articular surface and placing it in a position to secure osteal union between the patella and shaft of the femur, we compensate to a certain extent for the preservation of the periosteum. Now, then, the line of incision must be such that when the tissues are approximated, the scar will occupy the position where there is the least friction and pressure. If we make the amputation in the thigh I am very much in favor of a circular flap. I have always used it, as there is less likelihood of having a continuous cicatricial mass to the periosteum. If we adopt the plan of suturing the subcutaneous tissues, muscles, sheaths, etc., in layers over the end of the stump, the muscles will eventually be absorbed by pressure, but before absorption takes place they prevent adhesion of the superficial scar with the periosteal scar, and in this way allow movable tissue on the end of the stump which is not fastened to the end of the bone.

The method of taking care of blood vessels on account of danger from secondary hemorrhage is one of considerable importance. The experiments of Dr. Senn showed that when we put on a double ligature we had much less likelihood of secondary hemorrhage than from a single ligature. This, I believe, was due to the fact that the upper ligature was not placed as firmly as the lower, and a clot was formed between them. I found in the practical application of that method that it is difficult to say how much pressure we need upon the ligature. If we will change the method of ligation of vessels we can obviate the necessity of a double ligature entirely. When we ligate an artery, draw it down with forceps. Do not ligate an artery on the proximal side of the forceps, but put the forceps high up on the vessel and ligate on its distal side. By ligating in this way we are sure to injure the intima with the forceps. If we injure the intima in the position where the circulation is intact, that is, where there is a continuous circulation of blood, immediately after the injury we have the formation of a clot which fills that portion of the vessel and becomes firmly adherent to the injured intima. This method was deduced and demonstrated in our recent arterial experiments. I have found that we have the safest guard against secondary hemorrhage in an artery that has its intima injured the most on the proximal side of the definite ligature. If we injure its coat by the application of forceps we produce thrombosis. The nerve should be drawn down and divided so that it will not be involved in the scar. I speak now, of course, of the large nerve in that region. By so doing we lessen the liability to neuroma from involvement of the nerves in the scar. If the sheath of the muscle be split and the nerve be inserted into the muscle there is less tendency to neuroma.

We have therefore in the operation itself, 1, the line of incision; 2, the protection of the end of the bone with periosteum to prevent adhesion at the line of incision of the superficial parts to the end of the bone; 3, care of the artery so as to produce injury to its intima and thereby bring about a primary thrombosis after the completion of the operation; 4, care of the nerve, and 5, drainage.

I believe that we have drifted too far from drainage in recent years. Surgeons take a great deal of pride in saying that they have never found it necessary to drain their cases. It is a very nice thing to say. When members of this class find it necessary to drain secondarily, they generally lose the patient. We must always be on the side of caution, and I believe that forty-eight hours drainage does not in the least retard primary union. Drainage for this length of time removes the primary wound secretion which prevents the accurate apposition of living tissues. Primary wound secretion can be nothing less than a detriment to union. Drainage for this length of time brings about accurate apposition. What else? The karyokinetic changes are taking place within a short distance of the cut surface and are preparing for a definite union.

INDICATIONS FOR AMPUTATION ABOUT THE KNEE JOINT.

Dr. Alex. H. Ferguson—The indications for operations about the knee joint have changed from time to time as science has advanced. The invention of the tourniquet, the ligation of arteries, the discovery of anesthesia, and the introduction of aseptic and antiseptic surgery have each added to or subtracted from the indications of these operations. There is no subject in the whole range of surgery that has been more talked about, more thrashed out and discussed, than amputations in general by the ablest surgeons of all times. And since the days of antisepsis and exploration of new fields, some physicians imagine that no advance has been made in amputations of extremities in the last twenty-five or thirty years. But such is not the case. One would suppose by this time that all the indications would have been really defined, but we are far from having all of them settled, and we can yet speak with propriety upon the various conditions which demand, and which do not demand, amputation. It varies a great deal with personal experience and with the conscientious ability of the surgeon to know what he can do in certain cases. To lay down a number of absolute indications for amputation at the knee joint would be folly. The indications, however, that are brought prominently before us are those produced by injuries. We may classify these injuries into mechanical, chemical, electrical and thermal. Mechanical injuries are the most common. There is no doubt about the necessity for amputation at the knee joint when the limb is torn away and totally destroyed below the joint, in a railroad accident, by machinery, or by a cannon ball sweeping along and taking it away. The indications in such cases are clear for a speedy amputation in the manner described this evening. Incised wounds, punctured wounds, lacerated wounds implicating the knee joint itself used to be frequent indications for amputation above the knee joint, not so much on account of the injury *per se*, but owing to the inflammatory conditions which followed, causing a septic arthritis. It was noted by the older surgeons that a large tear into the knee joint was much less dangerous than a small puncture. It is quite clear that a puncture would carry infection, and if not counteracted, eventually an amputation might be necessary. When, however, drainage was free, or the infection slight, a number of cases escaped amputation. All minor injuries, if taken hold of early and properly treated, are now excluded as cases for amputation above the knee joint. When the knee joint is involved we render the part aseptic, use antiseptics, and, if necessary, operate and do away, as much as possible, with the probability of septic inflammation following, but still there are some cases that have been neglected either by the patients themselves, or through an oversight on the part of the practitioner; septic arthritis from apparently minor injuries to the knee joint demands amputation. But not all of them. Even in those septic cases, if we freely open the joint, and, if necessary, lay it completely bare from one side to the other, use antiseptics and establish free drainage, a number of them go on to recovery without requiring amputation. It is a notable experience that excisions at the knee joint for acute septic arthritis are very fatal, and they are practically discarded. If we can not save a joint by free drainage, asepsis and antisepsis, we have to amputate it.

The indication for amputation when a wound is poisoned may come before the surgeon occasionally, as, for instance, when the knee joint of a child is torn by a mad dog. The idea of amputating is the first thing that naturally arises in the surgeon's mind. But I do not put this down as positively a justifiable procedure in the light of our knowledge of hydrophobia and its treatment. The surgeon would be governed by the conditions and circumstances of the case.

Other indications for amputation would be those in which the knee joint is crushed, or the bones below it are so injured as to leave no hope of recovery of its tissues. In these cases amputation or disarticulation should be done. In cases of compound fracture implicating the knee joint, and compound dislocations involving it, it would depend more upon the injury done to the soft structures than the fact of these compound conditions existing as to whether we should resort to amputation or not. A knee joint may be saved although there is a compound comminuted fracture, or a compound dislocation of it, provided the structures in the popliteal space are all right, and sufficient of the soft tissues in front are left healthy and intact to cover in the joint.

I will pass over the chemical injuries to the knee joint and consider the thermal—those of heat and cold. When a limb is hopelessly destroyed by heat below the knee joint, I am rather inclined to do a primary amputation. If the injury is so extensive as to char the limb, there is no doubt but a primary amputation is indicated. We know from our experience with crushing injuries that shock will not often subside until after an amputation has been performed. The shock will not subside, sometimes, in thermal destruction of the limb, until the patient is put profoundly under anodynes. I remember amputating the two legs of a little girl whose feet were badly burned, where the shock did not begin to pass away until after she was put under the influence of an anesthetic.

With regard to cold. You all know that I came from a country where it was cold. I have seen the temperature range from 25 to 45 F. below zero for six weeks at a time. I remember of having as many as a dozen or more cases brought into the hospital suffering from the effects of cold, especially frozen extremities. I believe there is an indication for primary amputation in some of these cases where both feet are frozen up to near the knees, and hopelessly gone from the start. Lives can be saved by doing primary amputation within forty-eight hours in such cases. I know that I have saved the lives of one or two patients by so doing. I have in mind at present a man, shipwrecked on Lake Winnipeg, whose two legs were frozen to a little below the knees. We waited for reaction, which never came; we watched for a line of demarkation, which never took place, and the patient succumbed in spite of all our efforts. We kept the limbs as perfectly aseptic as could be, and still the case went on and developed septicemia, and died in a condition not unlike that found in acute traumatic gangrene. In less extensive gangrene from frost bites the rule is to wait for a line of demarkation.

The electric destruction of limbs needs only to be mentioned as an occasional indication for amputations about the knee joint. There are injuries to the popliteal vessels and nerves which call for amputation. Injury to the popliteal artery or vein is occasionally present in separation of the epiphyses. I have met with two such cases. One case was that of a boy trying to climb into a wagon when suddenly the horse started, his foot slipped between the spokes causing separation of the epiphyses. When I was called to see him soon after the accident the limb was warm, but the artery was completely ruptured and we had to do an amputation the next day. It appears that in nearly all cases of separation of the epiphyses there is more or less injury to the vessels of the popliteal space.

Injuries to the nerves that demand amputation would be usually those of gunshot wounds, where a considerable portion of the nerves posterior to the knee joint would be destroyed. This brings us to the next class of indications, namely, diseases. The first would be inflammations, such as acute septic arthritis, which I have mentioned already. Then comes acute osteomyelitis. In a fracture near the knee joint acute osteomyelitis may start up, streptococcus infection may occur, and this may call for an amputation. Chronic osteomyelitis destroys the bones of the leg and suppuration may be so extensive that an amputation may be indicated in order to prevent general pyemia.

An important indication for amputations about the knee joint was tuberculosis, and for a long time knee-joint amputations were performed in almost all well pronounced cases of tuberculosis of the knee joint. That practice, however, subsided and excision of the knee joint was then introduced. Now we save many cases even from excision. There are certain conditions, however, in which amputation is still in vogue, and will be practiced as long as there is tuberculosis of the knee joint. I refer now to those cases of tuberculosis of the knee joint in which the patient has lung infection as well, where it is important to keep the patient in bed as short a time as possible. If the patient is run down constitutionally we can do quicker work by making an amputation, and can get a patient out of the hospital in two or three weeks thereafter. Amputation at the knee joint is indicated for tuberculosis when the joint is thoroughly destroyed, where the soft structures are all riddled with sinuses, and there is not sufficient bone left behind to make a suitable excision. In tubercular osteomyelitis involving the tibia up to near the knee joint, it is not necessary to amputate up to the line of extension of the disease. The infected part in the center of the bone can be scraped out and amputated at a suitable place.

Aneurysm of the popliteal artery sometimes demand amputation at the knee, those diffuse ones which rapidly spread and occlude the blood vessels so as to endanger the life of the limb below. In chronic aneurysms that extend into the knee joint, and in those not curable by other methods of treatment an amputation is advisable.

Sarcoma is a frequent indication for amputation. If we have sarcoma of the soft parts it may be removed. If it develops on the periosteum itself, and not too extensive, it may be chiseled off. I recall a case of sarcoma that I chiseled from the tibia over a year ago and followed it up with the antitoxin treatment from the streptococcus erysipelatosus and prodigiosus. There has been no return of the disease. Carcinoma is another indication for operation. It arises sometimes in connection with old chronic ulcers. Gangrene is one of the marked indications for amputation at the knee joint, and one of the most prominent indications demanding the operation is a spreading traumatic gangrene. If infection takes place in a severe injury below the knee joint and gangrene climbs up the limb, then amputation or disarticulation must be done at the knee joint, depending upon the condition of the soft structures. Gangrene spreads along the cellular tissues so rapidly that although the skin may look healthy when we cut it, we find we have to go higher. These cases often call for amputation above the knee joint. A good deal, of course, depends upon the time when we get the case and the extent of the gangrene. The symmetrical gangrene of Raynaud demands amputation. Diabetic gangrene is that form which surgeons formerly did not care to touch, but now with our aseptic and antiseptic precautions, in suitable cases we operate, knowing that diabetes *per se* is not the cause of such cases doing badly, but that the wound formerly did not heal on account of infection. We know now that these wounds do heal when suppuration is prevented. The diabetic condition serves as a predisposition for the multiplication of germs in the tissues. We also have senile gangrene to contend with in considering amputations at the knee joint. Amputation may be done at the knee joint in deformities, either congenital or acquired. We may have a tubercular or traumatic condition of the knee joint, which disables a patient for a long time. The limb becomes contracted, ankylosed and fixed in an abnormal position. Amputation may be a blessing in such cases. Congenital defects below the knee joint, in rare instances, call for amputation. In bad stumps due to disease of the bones, chronic ulcers, painful enlargement of the nerves, etc., an amputation higher up is the only thing to do in order to remove the pathologic conditions and get a good useful limb.

Having spoken of indications, I desire now to say a few words in connection with amputations at the knee joint.

Amputation at the knee joint is a recognized modern surgical procedure on sound surgical basis. We make a distinction between disarticulation at the knee joint, and amputation through or above the condyles of the femur.

History.—Allow me to mention a few historic facts connected with this operation. The earliest notice of it is by Fabritius Hildanus, who performed it in 1581. It was revived by Hoin (1764), after a lapse of 183 years. In spite of strong support by some of the best surgeons of this time it was soon forgotten, and sixty-six years went by until the great surgeon, Velpeau (1830) took it up and made it popular.

In 1824 Dr. Nathan Smith amputated at the knee, and his operation was the first of the kind in America. In this connection he may be characterized as the "Velpeau" of America. Markoe, Pancoast, Brinton and others, also advocated the operation.

British surgeons have been alive to the benefits of amputation at the knee joint; among those giving it distinction were Holmes, Pollock, Cooper, Syme, Carden and still later Ferguson, Lister, Stokes and others. This operation has been practiced more in America than in any other country, and the bilateral method devised by Dr. Stephen Smith will for all time have a useful and permanent place.

Surgical anatomy.—The anatomy of the knee joint is peculiar. Large size, with ligaments, tendons, synovial pouches, bursæ, large surface of articular cartilage, fibro-cartilages and tuberous bony extremities, all are encased in a strong fibrous sheath covered by skin. The quadriceps extensor tendon, the patella and the ligamentum patellæ are in front, each having its surgical bearing. On either side the hamstring tendons which demand our consideration, and behind in the popliteal space are situated the heads of the gastrocnemius, plantaris and popliteus muscles, as well as the vessels and nerves.

A brief consideration of the anatomy will show that the anterior 2 3 of the joint is but poorly supplied with blood vessels, and has no muscular tissue to form a good covering for the large head of the femur.

The tendons extending beyond the joint, to be attached to the tibia and fibula, retract so far when cut that it is difficult to utilize them in the flaps. If the anterior flap is too long its edge will inevitably necrose.

What shall we do with the patella? Should the condyles be cut off? How should the vessels, nerves and tendons be dealt with? What flap or flaps will obtain the safest and best results? These are the questions that surgeons have been trying to solve, and for which purpose many operative procedures have been carried out and recommended.

Operations.—Disarticulation may be diverse. 1, disarticulation by a short anterior and a long posterior flap (Hoin); 2, by a long anterior flap (Pollock); 3, by a long circular incision (Velpeau); 4, by an elliptical incision (Bauden); 5, by a modified circular (Chalot); 6, by lateral flaps (Stephen Smith).

Indeed these are not all the methods devised for disarticulation at the knee joint. Pancoast successfully made use of three flaps from the upper part of the leg. Which of these to select in a given case will depend largely upon the indications for the operation. If the case was one of injury below the knee, demanding disarticulation, the condition of the patient as well as that of the limb is to be taken into consideration. When shock is profound and continuous, as in a crushing injury, the life of the patient demands our first attention, and to save it rapid work must be executed. Dr. Stephen Smith's (1870) bilateral amputation can be done as quickly as any of the above six methods, and the stump is, I think, the best.

The recommendation of Dr. Brinton in 1872, to sever the semilunar fibro-cartilages from the tibia and leave them in the stump is a decided advantage. His own words are: "By thus leaving them in position I have a cap fitted upon the end of the femur which preserves all the fascial relations, eventually prevents retraction and guards against the projection of the condyles." The patella is of course left undisturbed, and it adds strength to the stump by preserving the integrity of the quadriceps extensor. The ligamentum patellæ should be cut close to its insertion. I am in the habit of cutting the hamstring tendons lower than the joint line and fastening them to the stump with catgut, in order to prevent their retraction and preserve their function. When a new and suitable insertion is given to these tendons, the strength and all the movements of the thigh are preserved, the stump can be as forcibly adducted, abducted, flexed, extended and circumducted as if no amputation had been performed. None of the authorities, and I must say none of the operators as far as I know, pay any attention to the above-mentioned treatment of the tendons of the muscles.

This simple procedure of giving insertions to severed tendons is especially suitable in amputation about the hands and feet. The vessels are ligatured always with catgut. If silk is used, history almost surely repeats itself, and one silk ligature after the other comes away by a process of suppuration. A vast amount of suffering, inconvenience, and more or less damage to the stump (making it tender), are prevented by absolutely discarding the use of silk in all amputations of the extremities.

The nerves must be cut shorter than the structures, and if of considerable size as here, it is possibly better to remove a wedge-shaped piece from the end of each, as recommended by Senn and coapting the two little flaps with fine catgut. The object is to remove the cut nerves away from the scar and end of the stump, thus lessening the tendency to the formation of neuromata and painful stumps.

Disarticulation by Stephen Smith's method has many features to commend it. An excellent covering for the femur; efficient drainage; well nourished flaps; scar between and behind the condyles, and a stump, powerful and serviceable are obtained. I fully agree with Roswell Park in calling it "The method of election." The tissues may be injured in such a manner as to make it impossible to form lateral flaps, then the surgeon will of course make his flap or flaps from healthy tissues. It is gratifying to know that one long posterior flap may be all sufficient, or the circular or modified circular is all right.

Two even, or uneven flaps, from any side of the knee may be chosen in emergency.

In selecting a disarticulation the joint must be healthy, free from infection, disease or extensive injury; the surrounding skin and structures must be healthy to afford ample flaps. In disarticulations as compared with amputations of the femur, shock is much less and the rate of mortality is very much lower. Aseptic and antiseptic surgical precautions have done a great deal for this operation. According to Legouest the mortality of disarticulation at the knee joint was 87 per cent., and of amputation of the thigh 74 per cent. during pre-antiseptic times; while now, according to Erdman (1895), the mortality of disarticulation is only 13 per cent., and of thigh amputation 21.5 per cent.

Septic infection of the synovial membrane, cartilages and bursæ, made the operation of disarticulation at the knee in former times simply a fearful one; hence the recommendation of amputation above the condyles by the older surgeons.

I am well aware that the surgeon who looks mainly to prosthesis would abandon the operation of disarticulation altogether, but he who pays attention to the principles of exæresis will stoutly uphold it.

Amputation through the condyles.—1. Transcondyloid (Carden's, 1846) (*a*) Lister's modification (1883), (Gross, 1866). 2. Gritti's osteoplastic operation (1857). 3. Stokes' supracondyloid modification of Gritti's (1886). 4. Sabanejeff's (of Odessa 1890) osteoplastic flap amputation.

Carden's operation consists of a long anterior skin flap, the length of the diameter, at the point of osseous section, and the dividing of everything else straight down to the bone, which is sawn through slightly above the plane of the muscles. Lister and Gross made a short posterior flap of skin, but otherwise the operation is just the same as Carden's. All the muscular and fibrous structures are sacrificed and the bone simply covered by skin.

I do not perform, as a matter of choice, any amputation which sacrifices all the muscular, tendinous and fibrous structures.

In Carden's amputation, the anterior flap is liable to die, the stump is easily injured and can not bear much weight on its end, and the whole stump is weak, because the muscles are allowed to retract, thus greatly losing their function.

In the light of our present knowledge of amputations and stumps, I can not understand why Carden's operation should be performed at all; it is much better to make the anterior flap a little shorter, and the posterior one longer; to preserve the quadriceps tendon to cover the bone, enucleate the patella if diseased, and if not saw a slice off it and leave the posterior muscular and tendinous structures sufficiently long to enable you to suture them to the deep fibrous structures of the anterior flap, when brought over to the end of the bone. In this manner, an ideal stump is the result. It is beautiful in shape, will bear the weight of the body on its end and is powerful in all its movements. By this means skin is sutured to skin, fascia to fascia, tendons secured in the stump, and all forming one uniform covering for the end of the bone.

When the operation is done for tubercular disease, all the synovial membrane should be dissected out. It is to be remembered that the condyles must be sawn through on a level with their terminations, and not at a right angle with shaft of the bone. If a child or youth is the subject under treatment, the epiphyseal line should be respected, and not encroached upon, if possible, under 18 or 20 years of age. Efficient drainage is obtained by means of a few strands of silkworm gut. Gritti's operation is a good substitute for Stephen Smith's disarticulation, when the patient is in excellent condition constitutionally and when it is not necessary to make a speedy operation. It takes more time to saw, fit and suture the patella and femur together than to do a disarticulation. This is also true of Stokes' and Sabanejeff's operations. Not infrequently you begin with the intention of performing Gritti's; but the patella can not sometimes be brought over the end of the bone until slice after slice is removed, and the operation is completed as a Stokes' modification. Gritti's and Stokes' operations are especially suited for tuberculosis of the end of the femur, where an excision is not advisable. I have no experience with Sabanejeff's osteoplastic operation; it appears to be an operation that will be suitable in exceptional cases.

When a section of the anterior surface of the tibia, including the tubercle with its attached patellar tendon, is removed, as in this procedure, more healthy tissue is required below the knee than in all the preceding operations, which may be an objection to it.

TREATMENT OF PATELLA.

Dr. CARL BECK—I shall have to make a few remarks only in regard to the treatment of the patella, as so much has been said by Drs. Cuthbertson and Murphy. There is one point to be considered in connection with the treatment of the patella, namely, the pathologic condition for which we operate. If we have a trauma to deal with, conservatism prompts us to leave everything possible. We leave the semilunar cartilages and the patella, if they are not crushed, if possible, in order to give the stump greater mobility and prevent retraction of the muscles. In those cases where the disease has invaded the knee joint and amputation is necessary, usually the patella is diseased also, and is not to be left. In most of the cases of Gritti's or of Stokes' operation the bone itself may be so thin by osteoporosis, that agglutination and further on adherence and callus of the bone is almost impossible. This applies particularly to tuberculosis. When tuberculosis develops near the knee joint, osteal atrophy extends a considerable distance up from the joint, and the healing of such osteoporotic bones is not liable to occur. Therefore, in most cases in which I have seen Gritti's operation performed by Gussenbauer, a secondary amputation has been made later on account of a badly healed tubercular stump.

The Stokes operation is not so important for our discussion, for the reason that support in our time is not on the stump but on the pelvis, and the stump itself rests only in an artificial limb and is not very much pressed upon. So much for the treatment of the patella.

I wish to say a few words now with regard to the treatment of the nerve. In order to prevent neuralgia and the formation of amputation neuroma, it has occurred to me that it would be necessary not only to draw the nerve down, but to make a plastic operation on the nerve; that is, split the nerve, remove half of it, fold it over, etc. I have done this in two cases a short time ago. I am not able to give you the results just now. I intend to make experiments along this line to demonstrate the healing of the nerve, making a plastic operation on the nerve and reflecting it upon itself. It seems to me, this will prevent the formation of amputation neuroma. The neuromata are very painful. I have excised a number of them. I have seen Dr. Ferguson excise these bulb-like growths. I believe drawing down the nerve is of great value, but inasmuch as the nerve ends remain there by their own tendency to grow, they develop often, even if not enclosed in connective tissue, into bulb like growths, and this of itself may cause neuralgia. I have not had a chance to observe the cases for a long time, but I will report my experiments later in a special paper.

FORENSIC RELATIONS OF AMPUTATIONS AT THE KNEE JOINT.

Dr. HAROLD N. MOYER—So far as the consequences of amputations are concerned, litigation might arise on account of bad stumps. These are by no means infrequent, and so far as their application to the knee joint is concerned, I do not think they are any different from amputations made in other parts of the body. There is one special form of disarticulation at the knee joint which calls for some consideration on account of its medico-legal relations, namely, cases of children before the bone has reached its full growth. I have seen a number of such cases, which have been litigated in our courts in various ways, and one of them is so interesting a type, that I will briefly relate it.

A case that has recently come under my observation is instructive as to the possible complications that may arise from a bad stump in children. Bryant in his excellent work says that conical or sugar-loaf stump is a natural consequence in children, that growth continues in the bone with greater rapidity than in the soft parts, and the end of the bone is thrust against the cicatrix in the flap and eventually adherence with painful conical stump is the result.

If this fact be lost sight of, it may lead to a suit for malpractice, as friends and relatives are quick to assume that a defective stump is evidence of the carelessness or incompetence of the surgeon who performed the amputation. A lad, 11 years of age, was brought to me for examination whose leg had been amputated four years before for a crushing injury, made by the wheel of a street car. The stump was in very bad shape, nothing covering the projecting end of the femur for two inches but thin and ill nourished skin; the cicatrix at the end of the bone had ulcerated. The stump was the seat of constant neuralgic pains, spasms, and was exceedingly sensitive to changes in temperature and the slightest mechanical irritation. My opinion was that a reamputation would be necessary, preferably through the shaft of the bone above the epiphyseal cartilage to prevent the recurrence of a bad stump. The injury was the subject of a suit of law, and the attorney for the plaintiff was anxious to show the painful and bad condition of the stump and the risk of reamputation as an additional element in damages. The amputation had been made by the railroad surgeon, and in the opinion of the family was improperly done. I was able to assure them that the bad stump was probably due to natural causes, for which the surgeon was in no way responsible, and that they were as clearly entitled to recover for a bad result from natural causes growing out of the injury as they would be if negligence were alleged.

A subsequent conversation with the surgeon showed that the limb was practically amputated at the knee by the injury, and that he simply severed some of the soft parts, shaped the flaps and dissected out the patella; he was deterred from making a section of the femur because of the collapsed condition of the patient and the fear that additional interference would result fatally.

The case is one of interest because of its bearings in malpractice suits and its general relations to amputions. It also emphasizes the fact that in the thigh amputations of children the section should be made above the epiphyseal cartilage, otherwise a bad stump inevitably results.

This is a type of a number of cases seen in which bad results have followed disarticulation at the knee in children. So far as the forensic aspects are concerned, the section ought always to be made above the epiphyseal cartilage. Another possible relation which has not been referred to, and which may have its forensic importance, is the amputation of legs that are paralyzed. I refer now to those flail-like legs that result from injury to the anterior horns of the spinal cord, in which there is complete motor paralysis of the legs, with atrophy of the muscles and of the bones, and failure of growth. Such limbs dangle about; their nutrition is low; they are exceedingly liable to injury because of inability to control them, and in many instances the patients themselves request amputation, or it is suggested by the physician in charge. I do not think with our present knowledge that these amputations are justifiable, particularly if there is sufficient power in the muscles which unite the pelvis to the thigh, the gluteal and psoas, to balance the leg upon the thigh. In these cases a resection of the joint should be made instead of an amputation, making the leg one piece from the hip to the foot.

SELECTIONS.

A Coroner's Perquisite.—The London *Lancet*, October 2, points out the absurdity of one of the fictions upon which the profits of coroners depend in England. In some parts of our own country a like superstition survives. "A very old and very persistent superstition has again dictated the action, or rather the inaction, displayed by the persons who first discover the body of a recent suicide. A poor fellow, named Henry Scott, recently committed suicide in a Suffolk village by hanging himself to a tree. It was stated at the inquest that an hour before he was cut down a man saw him suspended from a branch, but that instead of ascertaining whether life was extinct he went for the police, being under the impression that a body must not be touched save in the presence of the police. Some children also saw the unfortunate man and ran to tell their elders. But their elders did nothing, being under the same curious impression. It can not be too widely known that the prejudice against touching a body save in the presence of the police is founded upon nonsense, and nonsense to which before now lives may have been sacrificed. The fault probably lies at the door of the police who, in cases where a body has been moved and a verdict has been subsequently returned against some persons unknown, have been known to hint that if things had not been disturbed they could have obtained a clue, the sort of clue, we suppose, the absence of which accounts for the unsuccessful inquiries into the death of Miss Camp. The duty of a person who finds a body is first to ascertain that it is a body and that of a fellow creature. If life remains a medical man should be sent for and afterward the police. If it is necessary to remove the body to ascertain that it is a body (this would always be the case when dealing with death by hanging) it will be well to take accurate notes of the position in which it was found for the information of justice." We may learn from the above and other observations by our candid medicolegal experts that, barring necessary expense, the normal rate of income of an ordinary or inexpert or political coroner should not exceed $2,000. This rule will properly apply to localities where violent deaths are comparatively rare, namely, in our less populous localities. In more crowded situations a more liberal tariff must have sway. As a general rule, $5,000 per year is believed to be about all that a conscientious coroner may expect to claim after his legitimate expenses have been paid. Some coroners of cities of the larger size are said to be in the receipt of over $15,000 per annum, and yet find that amount insufficient to meet the total expense account, but some of this outgo must be regarded as intercurrent, non-legitimate or possibly political in its nature. One thing is very certain with regard to politicians who get elected to coronorial berths, however large their revenues may be, they find it difficult to "lay up a cent."

Soil Bacteriology and Water-Supplies.—Mr. Hunter, a Scottish analyst, in the *Sanitary Journal*, repudiates the idea that the day of chemistry has passed in the sanitation of our water-supplies. He likewise repudiates the assertion that chemistry and bacteriology tend to produce contradictory and confusing results. He says: "The production of carbonic acid in fertile soils is part of the life work of those important soil organisms with which every fertile soil is teeming, and the removal of this carbonic acid is the principal function of the field drain. In sterilized soil there is practically no solvent action results from dain with its .02 per cent. of carbonic acid in solution. Moreover, we many years ago proved that groups of our soil organisms possessed the power of decomposing stable double silicates, and we are therefore compelled to conclude that the salts dissolved in the river, well and drain water were due purely to the wondrous works of those living micro-bodies in the soil, and certainly not to purely chemic interchanges such as are, with such simplicity and accuracy, painted in books. From what has been said, you will have gathered that the composition of waters is very largely due to life in the soil; and it follows that the composition of waters may be materially altered by: 1, inoculation of soils or gathering ground with advantageous organisms, if necessary; and 2, by altering the compositions of the soil, so that the multiplication and working of those advantageous organisms may be encouraged.

"In recent years some medical officers, who have not yet learned the rudiments of bacteriology, have not hesitated to say that the chemic examination of waters is positively useless, and nothing but a biologic examination will satisfy them. I am quite as alive to the value of a biologic examination of water as any medical officer in Scotland can be, but I can only understand their criticisms by realizing that some of them have got hold of a word they do not understand, *bacteriology*, and that they are ringing the changes upon the public and their employers, the County Councils. It is now many years since, in conjunction with my worthy and able friend, Dr. T. G. Nasmyth, undertaking the bacteriologic part; and it is simply a fact that, we arranged to independently examine waters biologically and chemically, Dr. Nasmyth in every case, there was no single exception, the two methods agreed. More recently, Professor Bowhill of San Francisco, who is probably one of the very best practical bacteriologists of the present day, whose recent contribution to the bacteriology of water is the most masterly piece of work in this department that has ever been done, has had a similar experience. He has exchanged many samples with the State chemist, and in every case, good or bad, the biologic results have absolutely confirmed the chemic. These critics suggest that it is possible for a water to be bacteriologically bad, and that the badness will not be revealed by purely chemic analysis; but what they suggest is most impractical and well-nigh impossible of happening, unless some skilled bacteriologist were to grow pure cultures, say of typhoid bacillus, and introduce those into a water-supply, minus the medium in which they were grown. That, I take, however, to be impossible; but even were it not so, the presence of typhoid bacilli in such a case would be by intention, and the work of a demon. If the chemic examination of waters is worthless, it is more than time we had a new public health act, because at the present moment, as the law stands, if any question arises as to the quality of a water 'it shall be submitted to the official analyst for chemic examination;' not to the analyst or the medical officer of health for bacteriologic examination, but to the chemist for chemic examination. What, then, I maintain is that while we do not, and dare not, overlook the importance of the biologic examination of waters, the wholesale condemnation of the chemic examination is, to say the least of it, rash, and is attempted only by men who, in my opinion, are absolutely incompetent to judge either of the one method or the other."

Innominate Aneurysm Treated by Electrolysis; Recovery, Subsequent Necropsy.—In the *British Medical Journal*, Dr. Stewart of Philadelphia reports an important autopsy made on a recovered case of innominate aneurysm treated by the introduction of gold wire and by electrolysis. The autopsy took place about three and one-half years after a complete cure of a very large aneurysm. Ten feet of snarled, coiled fine gold wire were used in the case. The case was unfortunate in that the man was an alcoholic and syphilitic, and the subject of pronounced aortic and mitral disease, with extensive cardiac enlargement, generalized endarteritis and chronic nephritis. The aneurysm formed a large and prominent swelling at the roof of the neck. It was regarded as springing from and being limited to the innominate artery. The sac wall was of extreme thinness and, at least externally, was unprotected by clot. This, which was apparent to the eye and touch, was further demonstrated by puncture with needles. At the time of operation the sac wall seemed on the point of bursting externally in several situations over which the skin was extremely thin and bluish. The result of electrolysis through the introduced wire was very decided. Clot formation, leading apparently to solidification of the sac, was early manifest. The patient lived for nearly three years and a half after the operation, and finally died as the result of the formation of a large thrombus in the middle cerebral artery, the result of the advanced endarteritis present. Despite the most unfavorable condition of the patient, his bad cardiac and renal disease and generalized arterial sclerosis, his having had syphilis and being a steady drinker of spirits, the result obtained speaks strikingly in favor of this procedure as a method of treating sacculated aneurysm. The sac was found to be of extreme hardness, with complete consolidation and obliteration of its cavity. At the autopsy, which was performed four hours after death, the heart was found to be dilated and hypertrophied, the aortic and mitral valves sclerosed and insufficient, and there was a distinct fusiform aneurysm at the junction of the transverse and descending portions of the aorta, which throughout was the seat of extensive atheromatous degeneration. The sacculated aneurysm springs directly from the root of the innominate artery. The aneurysmal sac is approximately the size of a fetal head at term, length thirteen centimeters, transverse diameter nine centimeters. The sac is completely consolidated with organized coagula, in which lie the coils of wire. The consolidated sac has at its base a small cul-de-sac, the remains of the innominate artery. This, from the aorta, admits the little finger to a distance of four centimeters through the annular ring, sharply defined, two centimeters in diameter. The cul-de-sac was noted to contain in its interior a small coagulum, presumably of postmortem formation. The sac itself was very firm and wholly solidified, and when cut into was found to be completely occupied by organized material, in the interstices of which lay the coils of fine gold wire. Brain: A large thrombus is evident in the left middle cerebral artery. Softening has occurred in the region of the corpus callosum, caudate and lenticular nucleus and in the internal capsule of the left side. This cerebral thrombosis was evidently the cause of death. He has now treated two cases of sacculated aneurysm by the employment of electrolysis through introduced wire, and has directed the technique in a third successful case. This has naturally led him to give a good deal of attention to the subject. The result in his second successful case, the necropsy of which is here reported, and that obtained in the case treated by Dr. Hershey of Colorado, in which the solidification of the aneurysm resulted by this method, is sufficiently suggestive to engage the attention of the therapeutist. The method of treating aneurysm by the introduction of wire was first introduced by Moore at the Middlesex Hospital, in 1864. His case died of sepsis. Stewart thinks that in this case a great excess of wire was introduced. The cases of Loreta and Moore (both abdominal aneurysms), in which six feet and four to five feet of wire were respectively introduced, both resulted in cure. Stewart employs under strict antiseptic precautions fine silver or gold coiled wire, which, after the introduction of a moderate amount, will assume snarled spiral coils which will reach the whole caliber of the sac. Failures have occurred through the use of wire which was too stiff or too bulky; and steel or iron wire will decompose and fill the sac with a granular detritus which may be the cause of emboli. Galvanism with a rather strong current, 40 to 80 milliamperes, Stewart considers a very important part of the treatment, for, although the presence of the wire itself may be sufficient to obstruct the blood stream sufficiently to cause thrombosis, the passage of the galvanic current through the cells is observed to cause much more rapid and firm solidification.

Perforating Ulcer of the Foot; Operation; Recovery.—Dr. Cazenavette, in the *New Orleans Medical and Surgical Journal*, November, reports a case of the above named affection as follows:

On July 17, 1896, S. W., a negro 29 years old, was admitted to Ward 1, Charity Hospital; formerly brakeman of freight trains, now barber; single; good ancestral and personal histories. In 1888 he received a gunshot wound in the back. A 38-caliber ball entered on a level with the eleventh rib, one and one-half inches from the median line. He fell, and on attempting to rise realized that he had completely lost control of the lower limbs. The next day he was taken to the hospital. Complete paraplegia of the lower extremities was marked; paralysis of the bladder necessitating catheterization soon became apparent. Acute symptoms of cystitis were early manifested. The patient suffered agony for a week and had high fever. The penis became very much inflamed, edematous, the meatus everted and a membranous structure was extruded. This was secured, extracted and found to be a complete membranous cast of the bladder, with the opening that of the urethra. A few months later the patient left the hospital, slight paralysis of the right leg remaining.

In 1892, four years after his spinal injury, while working on a freight train, fearing a collison, he jumped to the ground and pierced his right heel with a spike; according to his statement it entered fully an inch. A few days afterward he applied for treatment at the out-clinic of the Charity Hospital. Irregularity of attendance and neglect resulted in a local ulcer. The inconvenience of this ulcer rather than pain decided him to abandon his occupation and go to the hospital. Just after his admission he was smitten with the smallpox and sent to the pest house, where he finally recovered. As only the history of traumatism was given the ulcer was treated as a simple traumatic one. Thorough antisepsis and asepsis, with rest, were the features of the treatment. The ulcer did not improve. It increased in depth rather than in surface. This argued that the true cause had not been determined, for such an ulcer, due solely to bacterial contamination (no diathesis nor dyscrasia present) treated as it had been with antiseptic care and rest in the recumbent position, would have healed in a short space of time. The ulcer of five years standing was situated on the right plantar surface, its posterior margin being about an inch from the end of the heel. It was irregular, circular and about an inch and a half in diameter. Its surface was sunken beneath its borders which, thickened and indurated, overhung the surface of the ulcer, causing it to appear smaller than it was in reality; callosity was a prominent feature. As previously stated, insensibility was marked all over the plantar surface of the foot. The diagnosis of trophic ulcer was made.

Dr. Matas, surgeon in charge, decided to try total extirpation with the view of reaching healthy tissue, to be immediately covered with Wolfe's grafts. The area of operation was duly prepared.

On January 15, two months after the operation, there remained two uncovered areas of granulations, each scarcely exceeding a quarter of an inch in diameter. On January 27, it was thought advisable to cover these granulating surfaces with grafts like the preceding, after the same preliminaries. On account of the impairment of sensation on the right thigh, the grafts were again taken from the left. The surfaces to be grafted after denudation were triangular in shape, with their apices in the center of the old ulcer, extending to the bone, and measured about five-eighths of an inch at the bases. Six days later the wound was dressed. The epidermis on one graft had begun to peel and both grafts were adherent. At the following dressing the epidermis on the other graft had peeled off and the whole seemed to be doing well.

At my last visit to the patient, on February 20, three weeks after the second operation, the healing process had progressed uninterruptedly, with the exception of the apex of one graft, upon which there appeared a granulating surface not exceeding a quarter of an inch in diameter. As those granulations and the surrounding tissues are healthy we are justified in assuming that this small area will reach the stage of epidermization without obstacle.

Perforating ulcers have been looked upon by the profession at large as almost incurable. When they are due to a progressive trophic lesion of the spinal cord their cure is apparently beyond our reach, but when caused by a non-progressive lesion, as we have in this case, the surgeon should supply general surgical principles which serve in the treatment of other rebellious forms of ulceration, viz., a total and complete extirpation of the diseased area, including the osseous as well as the soft parts; this is a matter of fundamental importance; the substitution of the excised part by large cutaneous grafts involving the whole thickness of the skin, as suggested by Wolfe and amplified by Krausse, by which the denuded surface is immediately protected and the weakened part reinforced by the addition of new and vigorous material, endowed with all the attributes of living and resisting protoplasm.

The Father of English Surgery.—John Ardene, a contemporary of Chaucer, Wycliffe, Froissart, Petrarch and Guy de Chauliac, belongs to a period of extreme interest in the evolution of general and surgical literature, and it will be seen that he within his sphere gave no mean aid toward the advance of a higher culture. Of biographic facts we have but little to record, but it is known that he was born in 1307 and practiced at Newark in Nottingham from 1349, the year of the plague, until 1370, when, at the age of 63 years, he settled in London. Thenceforth he appears to have devoted his days to the publication of his experiences, in the form of treatises upon medicine and surgery. It is surmised that he had been previously attached for a time to the English forces during the French wars in the capacity of field surgeon, for there is no doubt that he was well acquainted with France and its language, and that he had an extensive experience in the treatment of wounds; but although he calls himself *chirurgus inter medicos* there is nothing to show that he had possessed a Master's degree or any formal license for the exercise of his calling. However, this may be, his writings prove that he was a man of clerkly attainments, with a good knowledge of Latin and French, and well-read in the available literature of his profession, quoting freely from the works of the medieval surgeons, the Arabs, and even from the Greeks. That he achieved fame as a surgeon is no less certain. He refers with pardonable pride to a number of distinguished patients whom his ministrations had restored to health, and he is said to have received from the Black Prince, a grant of land in Connaught, and with it the right to prefix the noble particle "de" to his name. It is hard to say whether the position of an Irish landlord was more enviable then than now, but the colossal fees he was able to command from his wealthy clients probably rendered him independent of his Hibernian rentals. In his case, as in that of Guy de Chauliac, the literary labors which have preserved his memory were the outcome, and not the cause of his success, for it was not until he had won an honorable repose that he found leisure to give the world the secrets of his practice. His writings, couched in fair Latin and dealing with nearly the whole of medicine and surgery as they were then known, were noteworthy productions of a reactionary but still illiterate age, and they appear to have been duly valued during the next three centuries, although none received the honors of the press except an abstract translation of an essay on fistula, which was printed in 1588 by John Read, as an appendix to a translation of Franciscus Arceus on wounds. When Ardene was in his prime there was but one scientific center in Europe where any pretense of surgical teaching was maintained. The once famous school of Salerno had already become effete. The Italian revival under William of Saliceto, Theodoric, Lanfrank, Modini and others, had given place to the old stagnation against which Bologna had made a valiant fight before sinking into premature decay. Paris, too, after listening to the teaching of Lanfrank and of Henri de Mondeville, had absolutely turned her face to the wall, and Montpellier alone, thanks in part to its geographic position, which brought it within nearer touch of Arab learning, was liberal enough to sanction the cultivation of anatomic and surgical science, not, indeed, within the walls of its university, but in extramural classes, in which, among others, Guy de Chauliac, the greatest surgical figure of the age, took a leading part. Even this tolerance soon died out, and Montpellier went the way of Salerno, Bologna and Paris, but not until the work of Guy de Chauliac and John Ardene was ended. In England the age of Chaucer and Wycliffe made no provision whatever for medical progress, and there was no school of anatomy or surgery throughout the land, and no English contributors to the literature of the subjects could be said to exist, if we except such theoretic references as may be found in the works of Gilbertus Anglicanus and John of Gaddesden, written, like all medical treatises of the time, in Latin. It is true that the writings of the Arab physicians, which gave an imperfect sketch of Greek surgery, and those of William of Saliceto, Roger, Theodoric, the Four Masters, Lanfrank, de Mondevillé and, after 1363, the masterpiece of compilation, the Chirurgia Magna of Guy de Chauliac, were also procurable in Latin guise, but the knowledge to profit by them was rare indeed in the ranks from which the representatives of English surgery were drawn. In the fourteenth century the lot of those of our countrymen who fell in need of our surgical ministrations was a sadly precarious one. The art was regarded by the educated physicians then, and for centuries later, as beneath their dignity. As expressed by our Elizabethan surgeon, John Read, in the doggerel which he and his fellows loved to prefix and append to their professional writings:

"Chirurgery moreover is
Abhorred of the Phisition,
Who doth esteeme it as a thing
To vile for his profession."

His writings convey a vivid picture of the man. It is easy to see him as the leech of courtly and obliging manners, sober in attire, and moderate in speech, and endowed with a self-restraint born of self-respect, with a tact that bore him well through the many difficulties that must have beset the thorny path of the *chirurgeon* in his day, and with a strong common sense that never rose too near the dangerous level of genius; a goodly man and true, kindly and honest, but shrewd withal, with a quick eye to the main chance and a capacity for raising expediency to the dignity of principle. He was through all a surgeon, a scholar and a gentleman, and in the records he bequeathed he stands before us as one whom we, his professional descendants, may accept with pride and veneration as the Father of English Surgery.—London *Lancet.*

First Complete Excision of the Stomach in a Human Being.—Dr. Carl Schlatter, in the *Medical Record* of Dec. 25, 1897, describes the case as follows: The personal observation forming the subject of this paper, relates to a woman 56 years old. In her case I completely excised the stomach, even beyond its cardiac extremity, and then restored the continuity of the alimentary canal by stitching a loop of small intestine into the lower end of the esophagus, *i. e.*, esophago-enterostomy. I first saw the patient at the surgical polyclinic on Aug. 26, 1897. An inspection of the abdomen revealed a marked bulging between the left hypochondriac region and the umbilicus. The abdominal parietes were flabby, and palpation easily revealed an oval mass of hard consistency in the region of the stomach. The tumor was freely movable. Its size was about that of two fists. Very marked emaciation was found. The patient was unable to retain any kind of nourishment. She clamored for relief by surgical interference. She was admitted to my wards for further careful observation. I did not feel confident that gastrectomy, or even gastro-enterostomy, could be successfully performed, on account of the large size of the tumor. The patient continued to reject almost everything, including fluids. The iodid reaction of her saliva (after exhibition of iodid of potassium) required forty-seven minutes for its first appearance. The chemic' examination of her gastric secretion showed no trace of free hydrochloric acid. . . .
On Sept. 6, 1897, acting for Professor Krönlein, I performed laparotomy under morphin-ether anesthesia, and with strict antisepsis, incision in the median line, extending from the ensiform process to the umbilicus. As I had anticipated, the entire stomach presented itself in the shape of a hard mass extending from the cardiac to the pyloric extremity. Strangely enough, the tumor was freely movable. It was readily lifted out of the peritoneal cavity. Three rather soft lymph nodes were found at the greater curvature near the pylorus. The stomach being diseased *in toto*, a gastro-enterostomy was impossible. I at once decided to attempt to excise the entire organ, or take recourse in a jejunostomy. I first freed the stomach

from all its attachments at the greater and lesser curvature, having previously shut off the general cavity of the peritoneum by sterilized compresses. The omentum was incised between Péan's forceps. Silk sutures were used. The stomach was then forcibly dragged downward so as to enable me to reach the esophagus. The left lobe of the liver had to be constantly held upward by an assistant, in order to permit me freely to manipulate within the field of operation. In this way I finally succeeded in securing the esophagus rather high up, by means of a Wölfler clamp. A Stillé forceps was next fastened closely to the cardiac end of the tumor. Then the stomach was severed directly beneath the esophageal extremity. As the esophageal incision appeared somewhat oblique, I proceeded to place a small occluding suture at the gastric wound. The same steps were now repeated at the pyloric end of the stomach. I next mobilized the duodenum as far as possible toward the head of the pancreas. Then having applied a duodenal compressor, and likewise a tumor clamp, I removed the entire stomach between the two points of compression. I also dissected out the lymphatic nodes above mentioned. The patent lumen of the duodenum was treated, like the esophageal opening, with iodoform gauze. The broad bridge joining together different divisions of the alimentary canal had now been entirely removed. I next tried to pull the duodenal opening upward toward the esophageal cleft. It was only with considerable difficulty that the two could be made to touch. It was manifestly impossible to join them by direct suture. I therefore invaginated the duodenal rim and closed the opening by a double suture. I then searched for a suitable coil of small intestine. Beginning at the duodeno-jejunal fold, I followed down the intestine for about fifteen inches. The presenting knuckle of intestine I grasped, and pulling it over the transverse colon, I placed it against the esophageal slit. A piece of this intestine, about five inches in length, was secured between two Wölfler clamps. By means of sutures not going deeper than the serous coat, the intestine was then attached to the esophageal stump. A longitudinal slit about one inch in length was then made into the bowel. Then the mucous membrane of the esophageal end was firmly united with the intestinal mucous membrane by a continuous circular suture. The material employed was silk. Above this a second suture, extending through the muscular and serous coats, was introduced. A Lembert suture finally completed the stitching, which now seemed to hold. The esophageal and duodenal clamps were then removed, the former having remained in position for over two hours. On dropping back the organs into the abdominal cavity, the sutured portions showed marked retraction upward toward the esophageal part of the diaphragm. The abdominal wound was closed in the ordinary way by silk ligatures. Less than eight ounces of ether had been employed during the narcosis, which had fortunately been a very quiet one. Pulse after the operation 96 a minute, steady and of fair volume. There had been a very slight loss of blood during the course of the operation, which, however, had lasted nearly two hours and a half. There was a steadily progressive increase in the weight of the patient after removal of the cancerous stomach. . . . There being no food receptacle after ablation of the stomach, it became obligatory to feed my patient at first with minute quantities of food, given at short intervals. The results of this method of procedure were in all respects happy ones. Quantities of food approaching ten ounces seemed to excite vomiting. So, too, cold fluids resulted in diarrheal discharges, and may have been partly responsible for the rise in temperature, observed for some little time after the operation. Keeping in mind the absence of mechanical function, the patient's dietary was at first a strictly fluid one. But as early as the second week after removal of the stomach, semi solid and even solid food was allowed. It was retained and digested without discomfort The patient having only a single tooth, mastication was of course quite imperfect, otherwise it seems to me possible that an ordinary mixed diet might have succeeded at a still earlier date. Some weeks after the operation the patient's ordinary daily dietary was as follows: At regular intervals of from two to three hours she took milk, eggs, thin gruel or pap, tea, meat, rolls, butter and Malaga wine. The daily quantity amounted to one quart of milk, two eggs, two to three ounces of pap or gruel, seven ounces of meat, seven ounces of oatmeal or barley water (as thick almost as gruel), one cup of tea, two rolls and half an ounce of butter. Personally I felt most concerned about the obliteration of all chemic activity on the part of the absent stomach. I soon perceived that adding pepsin and hydrochloric acid to the food was theoretically as inadmissible as it had been found practically valueless. The alkaline fluids of the intestine at once neutralized the acid and rendered the pepsin inert. Fortunately it soon became apparent that despite the absence of acid pepsin, proteids were readily assimilated in the intestinal tract. . . . Products of abnormal intestinal fermentation or decomposition (skatoxyl and indoxyl) were either not at all found, or else discovered only in traces. . . . The patient objected to swallowing charcoal. Huckleberries were at three different times found in the passages, twenty-four hours after having been swallowed. Apart from a daily recurring diminution in the quantity of excreted chloride, the urine of this woman has remained normal since ablation of her stomach. The daily excretion of chlorid of sodium has been found to vary between the limits of 0.6 per cent. and 0.95 per cent. It should be stated in this connection, however, that, complying with the wish of the patient, her food is prepared with less salt than that of the other ward patients. The stools were well formed, of normal consistency, and light yellow in color. The microscope showed large numbers of fat globules and fatty crystals, some undigested vegetable fibers, but no undigested animal fibers or connective tissue. Large quantities of triple phosphates were observed. The number of micro-organisms was normal. Altogether repeated examinations revealed no noteworthy departure from a condition of perfect health. No matter what theoretic physiologic notions we may have imbibed from lectures and textbooks, the woman under observation had repeated attacks of ordinary nausea, retching and vomiting. We must needs conclude, therefore, that the rôle of the stomach (*i. e.*, its antiperistaltic efficacy) in this direction has been very much overrated. While the vomited substances showed an acid reaction, this was not due to the presence of free hydrochloric acid. In view of the fact that the patient ejected as much as thirty ounces at one time, it seems reasonable to suppose that the remaining portion of the duodenum may have already begun to show distention sufficient to produce a sort of compensatory receptacle for food, perhaps nature's attempt in the direction of the new formation of a stomach. In endeavoring to explain vomiting without a stomach, we should remember that the act itself is far from being a simple process. It is due to nervous action on a complex motor apparatus, consisting of pharynx, esophagus, stomach, diaphragm, and abdominal muscles. It is not surprising, therefore, to have witnessed in this woman an ordinary attack of bilious vomiting, superinduced by a mere psychic disturbance.—*Abstract.*

How the Surgeon Lost His Fee.—A famous Vienna surgeon was asked, by telegraph, how much he would charge for a capital operation on Reb Chaim Rosenbaum, a young, promising merchant in darkest Polish-Russia. The reply was that 5,000 gulden ($2,000) would be a fair compensation for the job. After various negotiations it was agreed that the desired amount should be paid after the operation was performed. The surgeon left sunny Vienna at once to emerge, after a thirty-six hours' journey, in the garlicky atmosphere of a small Polish town. There he was met by a congregation of long-bearded and long-coated individuals with long faces, who explained that the life-saving professor was too late this time and that good Reb Chaim Rosenbaum was gathered to his fathers the previous night. The surgeon's disappointment was so much greater as the mourning survivors did not show any willingness to pay his expenses. He concluded, however, to take a day off in the town. The population heard of the presence of the celebrated surgeon and it was not long before he saw himself surrounded by a crowd of surgical cases. He was kept busy operating the whole day, receiving fees of 50 to 100 gulden from each patient, so that, while not getting the stipulated 5,000, his trip was not a dead loss. When on the following day he was entering his train to return to Vienna an old Polish gentleman most politely approached the professor, wishing him a lot of good things, praising his skill and many virtues, and finally saying that the whole town was forever under deep obligation to him, and to show his everlasting gratitude he would confide a secret to him. The professor could do no better than to listen and great was his surprise when he heard the following confession: "Don't you know, dear professor, that there is some mistake about Reb Chaim Rosenbaum's premature end and that in fact he found it preferable to stay with us instead of being gathered to his fathers. Among the many patients you operated upon yesterday you also operated upon Reb Chaim Rosenbaum, and God bless you, you were satisfied to take 50 gulden instead of 5,000. Thanks to Heaven and to the greatest of the great professors, he is on the road to recovery. Great is your kindness and great is Allah !" The professor made an unsuccessful effort to smile, the locomotive began to puff, and when next he goes to Rosenbaum's town, without a payment in advance, may we be there to see.—*Clinical Recorder.*

PRACTICAL NOTES.

Combination of Iodid and Thyroid Treatment of congestion of the thyroid gland. Halipré advises combining these two treatments as indicated in acute cases of congestion and hypertrophy. He reports a case cured by the combination, rebellious to either alone.—*Semaine Méd.*, December 22.

Can Liquids Injected Into the Gums Find Their Way into the Bones?—Dzierzawski replies in the affirmative as he found that a solution of methylen blue injected into the interdental papillæ found its way into the upper jawbone as far as the antrum of Highmore. The lower jaw was only colored by it in the close neighborhood of the injection.—*Cbl. f. Chir.*, November 13.

Purulent Peritonitis in Pregnancy.—Fabricius reports a case operated on, releasing a large quantity of fetid pus, but the uncontrollable vomiting that followed made abortion necessary. The patient recovered rapidly. When laparotomy was performed the diagnosis was still uncertain, but temporizing would have proved certainly fatal.—*Gaz. d. Osp. e d. Clin.*, December 9.

Gelatin Vaginal Tampons.—J. Fischer presented some convenlent tampons at a recent meeting of the Vienna Medical Club. The cotton impregnated with the desired substance is inserted in a gelatin shell provided with a cover opening inward. The patient can easily introduce the shell herself. The gelatin melts in twenty minutes, and the cotton wad is removed the next day by means of a string attached to it.—*Therap. Woch.*, December 5.

Revulsion and Infective Processes.—V. Martini reports the results of an extensive series of experiments to determine the effect of revulsive medication on the infective processes beneath. He states that they are absolutely ineffectual; the subjacent infective process and the superficial pursue their respective course without the slightest reciprocal effect. Useless in all, they may prove distinctly injurious in some cases.—*Gaz. d. Osp. e d. Clin.*, December 9.

Decomposition of the Blood by Chloroform.—Desgrès and Nicloux state that chloroform in contact with potassium or any alkaline disengages oxid of carbon. Experimental investigation showed that the alkaline blood affected inhaled chloroform in the same way, one subject having 1 to 1000 of oxid of carbon to 5 kilograms of blood, total weight 65 kilograms. While this proportion is not very large, still it may explain some of the accidents due to chloroform.—*Presse Méd.*, December 11.

Therapeutic Ferments; Beer Yeast in Diabetes.—The diet can be varied in diabetes if two or three tablespoonfuls of beer yeast are taken during the day at meals, disguised in beer or white wine. It promotes assimilation and destroys the sugar derived from the food, while preventing the accidents that follow an exclusive meat diet. It is especially useful in cases in which the sugar is chiefly derived from the food, but is beneficial in all. It should be discontinued for a few days from time to time, or less taken every three or four days.—*Gaz. Méd. de Liège*, December 23.

Treatment of Pott's Disease with Sublimate.—Capparoni has succeeded in gradually improving and curing the paralysis and pain in three cases of Pott's disease, two cervical and one dorsal, by a daily subcutaneous injection of 10 centigrams of sublimate. None were syphilitic. In two months the first case was able to walk. She returned to the hospital two years later with paralysis of the members; a second course soon restored her. She had borne two children in the interval.—*Semaine Méd.*, December 22.

Substitution of Sea Water for Saline Solution in Hypodermic Injections.—Hallion recommends diluted sea water for this purpose, as it is better supported and can be administered in larger amounts and much more rapidly. It is infinitely less toxic than the solutions of sea salt usually injected. Another point is that sea water lowers the temperature while salt solution raises it. The density of the urine is less with the former, indicating better functions of the kidney.—*Semaine Med.*, December 8.

Prevention of Pitting in Variola.—Satisfactory results are reported by several practitioners with Finsen's method of keeping the patient the entire period of the disease in a room illuminated only with red light, like a photographer's dark chamber (*Presse Méd.*, December 22). Kolbassenko recommends the following salve for dressing the eruptions: Ichthyol, 19 grams; almond oil, 60 grams; lanolin, 20 grams. Apply externally three times a day until the scabs fall.—*Gaz. Méd. de Liège*, December 23.

Orthoform in Hypodermic Injections for Surgical Anesthesia.—Hirschbruch states that orthoform will produce a lasting local anesthesia sufficient for minor surgery, while the non-toxicity is a great advantage. He first injects into the skin a small amount of a 2 per cent. solution of cocain (about 2 milligrams of the salt) and then injects in this spot in several points 1 c.c. of distilled water containing 3 per cent. orthoform in solution, shaking the syringe well at each injection, as the orthoform does not dissolve but is merely held in suspension.—*Semaine Méd.*, December 22.

Anti-Diphtheria Serum in Asthma.—Proceeding from the fact that anti-diphtheria serum causes the pseudomembrane to be thrown off by means of an exomosis from within outward. Professor Revilliod of Geneva, has tried it in several severe cases of asthma, which he has cured after they had resisted all other remedies for years. Improvement was noticeable after the first injection in the first case, increasing with each one until the recovery was complete in five months with ten injections. The second case was cured in ten days with three injections. The third with six injections in two months.—*Therap. Woch.*, December 5.

Fluoroscopy of Pleuritic Effusions.— Bergonié and Carrière report that the fluoroscope shows the displacement of the liquid as the patient assumes various positions, and with the motions of the diaphragm. Purulent effusions seem less opaque than the serous. But its principal value consists in the information derived in regard to the condition of the lungs above the effusion. It completes Grancher's schemas, reveals bacillary lesions and has a great prognostic value. In one case the clinical data were at fault owing to adhesions, which prevented the "sou" sound considered by Pitres pathognomonic.—*Semaine Méd.*, December 15.

Continuous Suture in Two Layers.—Mikhailoff obtains remarkable solidity with his suture described and illustrated in the *Presse Méd.* of December 8. It resembles the sewing machine stitch, which consists of a series of loops over a second thread. The thread is passed through the top of the wound. A loop on one end is drawn through the tissues, forming a double thread in them. Two loop stitches are taken in this way, when the ends are crossed and a second row of two loops applied, or the ends can be crossed between each stitch. The strength of the double thread inside the tissues and crossed threads outside, especially adapt this suture to wounds or autoplastic operations in which there is a large loss of substance.

Severe Hemorrhage after Extirpation of Neoplasms Controlled by Cocain.—Grazzi removed a large pediculized papilloma from the larynx of a woman who shortly before passed through an attack of influenza. The patient was seized with violent coughing and blood-spitting, which the usual remedies failed to control. After two hours of vain attempts he finally swabbed the larynx with a 20 per cent. solution of cocain, which stopped both the coughing and the hemorrhage for a while. The cocain had to be applied three times before all hemorrhage ceased. He reports another case of the ablation of a simple polyp of the nose after an attack of influenza, likewise followed by excessive hemorrhage.—*Semaine Méd.*, December 22.

Electricity in Elephantiasis.—The conditions peculiar to early childhood render the action of electricity especially beneficial in lymphangitis, and Moncorvo reports "magnificent" results attained with the faradic and galvanic currents. Treated in the initial period of its development, the formation is arrested and in many instances subsides completely. In more advanced cases the morbid tissue is transformed more or less rapidly. Elastic compression and hydrotherapy were combined with the electricity. *O Brazil Medico* of October 8 and 15, contain his communication in full, accompanied by several illustrations of remarkable manifestations of the disease in early childhood. One infant, well developed otherwise, looks as if his foot had been inserted in an enormous watermelon. In another, congenital, the disease assumed the fibrous and cystic form.

Naphthalan for Skin Therapy.—A series of observations has been made in Professor Finger's out-patient department, by Dr. Pezzoli, on a new preparation named naphthalan which appears to combine the therapeutic properties of tar with those of naphtha. It is a dark-brown unctuous substance with scarcely any smell and a melting point of about 70 degrees C. When used as an ointment it leaves no stain on the patient's linen, after it has been washed. It is very useful in various forms of eczema, sycosis and common psoriasis, as well as in parasitic affections, such as ringworm and scabies. It should be used with a certain degree of caution, as if rubbed in too energetically it is liable to produce some folliculitis of the same nature as tar acne. It was tried in forty-two cases of eczema and appeared to be of value in all stages, which renders it a very convenient preparation for general or out-patient practice. Excellent results were obtained in all the fifteen cases of impetigo contagiosa in which it was prescribed. In scabies three applications were found be sufficient.

Alcohol Vapor Compresses.—E. Heuss has revived the old practice of applying alcohol to wounds, studying the *modus operandi* and finding that the beneficial results are due to the vapors of the alcohol penetrating the tissue. He promotes this by applying the alcohol on a six to eight folded mull compress, dipped in 95 to 96 per cent. alcohol, squeezed till it no longer drips with moderate pressure. Over this a broad layer of dry surgical cotton, one or two fingers thick, is laid, and a soft airtight covering renders the whole impermeable. The first dressing is renewed in twelve hours; less frequently afterward. A thin layer of dry xeroform gauze is applied under the alcohol, on open ulcerating wounds. His communication to the Moscow Congress is published in the *Therap. Woch.* of November 28, with instances of the remarkably favorable results attained with the vapor compresses, especially in sycosis, furunculosis, carbuncles, gonorrheal epididymitis, etc., and also in aborting phlegmons and mastitis. They were equally successful with infected wounds.

Abortive Treatment of Endometritis with the Vapors of Bromin.—Nitot remarks that the true prophylaxis of parenchymatous metritis and chronic salpingitis consists in curing recent endometritis while the inflammation is still superficial, with some substance that will penetrate to the remotest crevices in the uterus, and even into the tubes, extremely antiseptic, diffusible and endowed with anticatarrhal properties sufficient to modify without injuring the tissues. Bromin, which is soluble in water and disengages dense vapors at the ordinary temperature, is endowed with all these properties. A bottle with a double current sound attached is filled with a saturated aqueous solution of bromin; air is forced into the bottle by a bulb entering the bottom. The results attained with this simple treatment have been extremely satisfactory, as the healing vapors reach every point of the surface with sufficient force, and none of the disadvantages of a liquid.—*Journ. de Méd. de Paris*, November 28.

The Subcutaneous Injection of Quinin.—As quinin does not dissolve readily in water (1 to 800 aq.), the discovery that antipyrin rendered it much more soluble led to the combination of the two for subcutaneous injections. Laveran's formula is: Quinin hydrochlor.; 3.0; antipyrin, 2.0; aq. dest., 6.0. With this mixture Blum secured remarkably favorable results in a severe epidemic of malaria in Algiers. The strange fact that a neutral quinin salt in a 50 per cent. solution failed to produce the slightest pain, induced Professor Santesson of Stockholm to investigate whether a new chemic substance had not been formed out of the combination, which he found to be the case, and named the compound quinopyrin. It is much less toxic than quinin, and the pain of an injection is no more than from salt solution. Quinopyrin (quinin 0.5 to antipyrin 0.33), reduced the temperature of a non-febrile rabbit 1.5 to 2 degrees. An injection of quinin 1.0 with antipyrin 0.66 produced merely a slight intoxication, temperature and pulse scarcely affected. The same quantity administered per os produced marked quinin intoxication and lowered the temperature 1 degree.—*Deut. Med. Woch.*, No. 36.

Crossed Adductor Jerk.—In a recent number of the *Journal of Physiology*, Dr. Purves Stewart has a short paper dealing with this subject. The peculiarity of a crossed jerk is one which is not infrequently observed, and essentially consists in movement of the opposite leg when an attempt is made in the ordinary way to elicit the knee-jerk on one side. In Dr. Stewart's case, if the right patellar tendon was tapped, two jerks occurred, one of the right quadriceps extensor, the other of the left adductor muscles, and conversely of the right adductor muscles and the left quadriceps extensor when the left patellar tendon was tapped. The jerks of the two legs appeared to occur simultaneously, but an apparatus was devised to show: 1. The moment at which the patellar was tapped. 2. The moment at which the knee-jerk occurred. 3. The moment at which the crossed adductor jerk took place. The instrument is described in the paper, and three photographs are also reproduced of successful tracings taken during the experiments. These show clearly that the crossed adductor jerk occurs at an interval distinctly later than the knee-jerk, the average delay between the occurrence of the knee-jerk and the crossed adductor jerk in the three experiments being 0.057 of a second. This interval is considerably shorter than Dr. Glynn found in a case of crossed vastus internus jerk. Dr. Stewart mentions that different opinions have been held as to the nature of the crossed jerk, some observers considering that it is a true reflex, others that it is a direct muscular jerk produced by a sudden stretching of the adductor muscles resulting from the "jar" to the pelvis caused by the tap on the patellar tendon; others also hold that the adductor jerk is due to a sudden mechanical shock to the spinal cord. Dr. Stewart is induced, by a consideration of the results of his experiments, to conclude that the crossed adductor jerk is not the result of direct stretching of the adductor muscles by a shock communicated from the pelvis or due to a shock transmitted mechanically to the spinal cord, but is a true reflex occurring at a period distinctly later than the ordinary knee-jerk. The considerations which have chiefly led him to reject the two former views are that a tap on any of the bones near the knee, although equally likely to "jar" the pelvis, did not produce the jerk, and that only one adductor jerk was produced, and not one on the same side as well. He finds that the average time necessary for the appearance of the crossed adductor jerk is about 0.126 of a second from the time at which the opposite patellar tendon is tapped.

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SHENCK'S THEORY OF SEX DETERMINATION.

An eminent Vienna embryologist, now somewhat on in years, recently advanced what he considers strong evidence for a theory of sex determination in a communication to a Vienna medical society. This communication has not only been commended by Austrian and British medical journals, but has been widely and sensationally exploited in the lay press. Practically the position of Dr. Shenck is that held by some obstetricians since the days when mother-right passed to father-right inaugurating the "couvade" by which after delivery the father must go to bed while the recently delivered wife arises to

> "Serve rich possets to her husband in the straw."

Shenck's theory of sex determination is essentially that of Shakespeare's day advanced by Falstaff (Henry IV, Act IV, Scene III) in answer to the reproaches of Prince John.

> "I would you had but the wit; 'twere better than your dukedom. Good faith, this same young sober-blooded boy doth not love me; nor a man can not make him laugh; but that's no marvel, he drinks no wine. There's never any of these demure boys came to any proof; for thin drink doth so over-cool their blood, and making many fish-meals, that they fall into a kind of male green-sickness; and then when they marry they get wenches; they are generally fools and cowards."

This theory, which Shenck claims to have demonstrated by the scientifically auspicious method of experiments on himself and wife without control experiments, is particularly an admixture of three older hypotheses: That paternal superiority determines the superior male sex. That paternal nutrition aids in determining this superiority, and finally that while the mother is of an inferior sex her good nutrition aids in determining the superior male offspring. All these theories more or less commingled have been advanced, as Thomson and Geddes have shown ("Evolution of Sex"), for centuries. They had a divine source according to Moyes, the paranoiac leader of the Oneida community. His claim (despite the large number of male hebephreniacs in insane hospitals among children of that community) was later supported by statistics ignoring these lunatics, collected (Holbrook's "Stirpiculture") by a Miss McGee of the community.

As most stress has been laid by Shenck (like many preceding students of sex determination) on nutrition of the parents, the question arises does nutrition influence sex? If (as asserted by obstetricians biased by ante-embryology theories) sex be predetermined from the outset of ovum development, then this influence must at once be rejected. Hypotheses like these, advanced ere the days of Von Baer, must at once be tossed into the lumber-room of disproved theories. The modern position as regards the existence of sex in the ovum is that of Laulanie, who has shown that in birds and mammals, three stages can be distinguished.

1. Germiparity, which is a return to that phase of lower cell development when reproduction was a function of all cells; a function which persists in the embryonic cancer cell to the destruction of the organism. 2. Hermaphrodism, where both sexes are evident. 3. Differentiated unisexuality.

Bland Sutton, Ploss and others are of opinion from careful research that in individual development embryonic hermaphrodism prevails, but that one set of elements predominates over the other in the establishment of the normal unisexual state.

Geddes and Thomson point out that ("Evolution of Sex"):

> The higher the organism is in evolution the earlier is its sexual fate determined. Only in the lower vertebrates (lamprey, lancelet, etc.), semivertebrates (sea-squint) and invertebrates, does prolonged neutrality of sex, or prolonged embryonic hermaphrodism usually occur.

There are then periods when nutrition may affect sex, strengthening the tendency from germiparity to embryonic hermaphrodism and from this to differentiated unisexuality. It is, however, evident that determination of the influence of nutrition on sex development in the higher vertebrates is difficult, since by Herbert Spencer's law of individuation unisexuality has early a preponderance.

As to the lower vertebrates Drusing has (*Internl. Centralblt. f. die Harn. und Sex., Org.* B. ii.) shown that:

> Sex is not inherited, but the result of various factors, acting not only at the time of impregnation, but at various times thereafter. Long after impregnation, when the embryo is already developed, nutrition is still influential, and may change the tendency even after the sexual organs have developed. Poor maternal nutrition may arrest female development and cause reversion to the male type.

The experiments of Henson (which supplement and extend those of Thury) show that:

> A very favorable condition of both ovum and sperm will lead to the formation of a female.

These results are however diametrically opposed to those of SHENCK and his numerous precursors since the days of ARISTOTLE. That both maternal and paternal nutrition have an effect is however demonstrable. Even that embittered doctrinaire opponent of the inheritance of acquired characters, WEISSMANN, admits that:

> The origin of a variation is equally independent of selection and amphimixis, and is due to the constant occurrence of slight inequalities of nutrition in the germ-plasm.

That, however, the influence of maternal nutrition is most potent has been shown by repeated biologic experiments as well as in studies of degeneracy. The unimpregnated queen bee, or the unfed (with queen food) fertile worker bee as a rule, with rare exceptions, produce only drones. Feed the worker bee (which is an undeveloped female) like the queen and she becomes a queen capable of producing queen and worker bees on impregnation. The phthisic mother usually produces males. This fact was pointed out by that eminent American clinician DEWEES, nearly seven decades ago ("Practice of Physic," Vol. ii), and has been before and since observed in connection with tuberculosis and other factors producing degeneracy. If maternal nutrition be thus potent in producing females (a wealth of evidence in this direction is cited by THOMSON, GEDDES, MAUPAS, DRUSING and others), then not only is the Shenckian hypothesis unfounded, but an inferior result (the female) is obtained. The biologist, unbiased by oriental Semitic tendencies, like those of Dr. SHENCK anent the natural inferiority of woman, is naturally led to enquire whether the female from the standpoint of reproduction be really the inferior sex. SPITZKA, the leading American pupil of SHENCK, to whom the latter admits his indebtedness (SHENCK'S "Embryologie," 1884), points out (*American Journal of Neurology and Psychiatry*, Vol. ii, p. 740) that:

> The development of the female genital organs is a higher grade than that of the male. At the early periods of embryonic life there is but one development regarding sex, and that is male. It is at this period of life that causes operate either to retain the original development or to impress on such a further development into the female.

A casual glance at illustrations of the embryonic development of the reproductive organs in that popular text-book, GRAY'S "Anatomy," sustains SPITZKA'S position. The male organ remains unchanged from a type found in even invertebrates, while the female gains with increased complexity. Zoologists rank animals in evolution by female characteristics. The mammals are an excellent illustration of this principle. The inferior races of man differ less from the higher by their brain than by their pelvis. The female pelvis of the lower races, as HAVELOCK ELLIS has shown ("Man and Woman"), is masculine in type, while the male pelvis of the higher races is feminine. To a lesser degree (excluding hydrocephalic male skulls, like that of CUVIER) this is also true of the skull. The female of mammals has under her care for life, that essential germ of the child, the ovum. The impregnated ovum for months is fed through her blood. She nurses the child for months after birth. Compared with this, the father's part in reproduction is slight. That the ovum is the essential germ of the child is shown by the existence of parthenogenesis (virgin generation). As SPITZKA remarks (*Medicine*, November, 1896):

> The ovum possesses an inherent activity independently of fructification. How far this may extend in the direction of more mature development is shown by what is known as parthenogenesis, or virgin generation. This is the development of living beings without a father. Bees, some butterflies, ants and wasps notoriously multiply their kind without sexual congress. As a rule the parthenogenetic offspring are themselves incapable of further procreating their kind. But to this there are remarkable exceptions. The aphides multiply for many generations without the entervention of a male. Weigenbergh has shown that the silk-moth can be propagated as long as the male element is permitted to act at every fourth generation. The *Artemia salina*, a minute crustacean living in saline springs, reproduces its kind for years without a male being present, males being produced at definite intervals only (von Siebold). Among the vertebrata, parthenogenetic development has also been observed, though rarely reaching maturity. Thus, segmentation occurs in unfertilized ova of the chicken (Oellacher), of the fish (Burnett and Agassiz), and of frogs (Moquia-Tanden). I have seen a blastoderm form in unfertilized ova of the toad fish (*Batrachus tau*). Henson isolated the oviducts of a rabbit, thus rendering the admission of semen impossible, while the ova, discharged at heat, were compelled to remain in these oviducts. Three years later he killed the animal and found that the ova had developed into twisted, club-shaped, hollow sacs. The development in the female ovary of dermoid cysts (containing bones recognizable as maxillaries with teeth, hair, and skin, rudimentary intestinal, glandular, and cerebral traces), even in undoubted virgins, proves that even the human ovum is capable of parthenogenetic development. While such development, so far as known to science, is always abortive, and while, as Washington Irving remarks, the ingenious maiden who today would attribute conception to any other cause than sexual congress would find it difficult to overcome the prejudice of scientists, yet embryology, while declaring immaculate generation improbable, does not pronounce it impossible. A worker bee is a highly organized creature with a well developed brain, wonderful sense organs, intricate muscular apparatus, yet it may be an offspring of an unimpregnated queen bee. What is a regular occurrence in one class of animals is sometimes observed as an exceptional one in another class. If the startling and apparently miraculous nature of a virgin generation of a living child be regarded as the sole objection to receiving such a fact, its defender might urge that the virgin generation of dermoid cyst with all the traces, however aborted, of vertebrate organization, is only a shade less startling and miraculous.

SHENCK has adduced no new evidence in favor of his old Aristotelian hypothesis. So far all the evidence at hand tends to show that while sex can be influenced by maternal nutrition and less directly by paternal, the female sex is most likely to be produced under favorable conditions. This is fortunate for man's future. Upon the perfection of the female, from a reproductive standpoint, turns future advance of the human race, since only through further development of the female pelvic organs and pelvis can the gains of the race be transmitted. Fortunately, enthusiastic oöphorectomists are rendering sterile no small number of female neurotics, thus lending potent assistance to the survival of the fittest pelvic organs. This beneficent result is not fully appreciated by those who decry such philanthropic labors. Discussion of the Shenckian hypothesis casts a decidedly optimistic light upon the labors of these painstaking gentlemen, since imperfect female organs (the result of deficient maternal nutrition *à la bee*) are relieved from a task for which they were unfitted, to the benefit of the race, of the public charitable and correctional institutions, of the owner of the organs, and last, but not least, to the financial benefit of the enthusiastic oöphorectomist.

THE ABUSE OF SO-CALLED NERVE TONICS.

Many men and women in and out of the medical profession are resorting more and more to the employment of drugs which have, what has been falsely called, a tonic influence over the nervous system, since they find that the employment of such substances relieves them of symptoms arising from nervous exhaustion and enabled them to go on with their work for a time, in a manner which would otherwise be impossible. At one period the employment of nervous stimulants, other than tea, coffee and alcohol, was confined almost entirely to those of the medical profession who ignored the fact that drugs used for stimulant purposes produce ruin in the end.

Unfortunately for the laity of today a large number of semi-medical purveyors, finding the demand for their products not sufficiently great, have resorted to means by which they call the attention to the fact that remedies can be obtained which will be capable, in the language of a recent writer, of producing "a condition of veritable beatitude both mental and physical, so that the mind expresses itself in incoherent flights of the imagination." As a result of this a large number of individuals who have no reason to doubt the plausible advertisements which they read, resort to preparations of morphin, kola and coca, which they take to excess and unconsciously drift into a state which is practically equivalent to the morphin and cocain habit. Even if these drugs are not employed as the stimulant ingredients of such mixtures, unprincipled vendors so fortify innocent and mild nervous stimulants with large quantities of alcohol that the patient unwittingly becomes a slave to this intoxicant though under the impression that he is ingesting a practically harmless drug.

Some interesting statistics, recently published in *Health*, show that such habits are most prevalent in Germany, France and the United States, although they have victims in Russia, Sweden, Turkey and the Far East. The medical profession supplies 40 per cent. of the male morphinists, which is the largest proportion; after which follow men of leisure, 15 per cent.; merchants 80 per cent.; while peasants, clergymen and politicians occupy the lowest positions numerically on the list. Among the females addicted to the habit, the largest number, 13 per cent., are women of means, and these are followed in number by the wives of medical men, who make up 10 per cent. of the list.

Very recently our attention has been forcibly called to these facts by an instance which not only emphasizes these dangers but illustrates how careful a physician should be when prescribing stimulant remedies not to give the name of the preparation to the patient, or if he does so, on the prescription blank to direct the druggist not to renew the prescription without his orders. A woman, who by many years of correct living enjoyed the full confidence of her friends, was during a short convalescence directed by her physician to take a preparation of coca wine which had been very largely advertised not only to the medical profession but to the laity under a name which in no way indicates that it contains so powerful a drug as coca. Not feeling fully recovered when the first bottle of it had been consumed, the patient obtained another, and soon finding herself dependent upon it continued to purchase bottle after bottle until at the end of a year she had become a typic coca habitué. Not until she had been using the preparation for nearly nine months was her continuous use of it discovered and, when it was too late, she learned from her friends that the pleasant tasting wine which possessed these extraordinary powers, depended for its chief physiologic effects upon a drug which did not appear in its name.

So, too, at a recent meeting of the British Balneological Society, Snow drew particular attention to a form of intemperance rising from the too free administration of coca wines to invalids, whereby they obtained a strong alcoholic beverage laden, more or less, with the still more powerful stimulant coca, and it was pointed out that many women who are not above the deliberate use of such stimulants, have not the bravery to ask for alcohol or cocain in the drug store and yet do not hesitate to purchase a coca wine, or preparation of kola, under some name which does not convey, at least to their minds, the possibility of developing a habit.

There is no drug yet discovered, unless it be alcohol, which adds materially to the force of the body, and physicians can do no more goodly service to their patients than by impressing upon them this fact.

At the present time journals devoted to the subject of athletics contain, in their advertising pages, statements in regard to the action of kola and coca which are absolutely unjustifiable, and pictures are published in these advertisements which give the impression that by the use of these drugs puny men and boys may become possessed of Herculean strength. All of these remedies simply call into activity the reserve forces of the human economy and place the reserve fund of the prodigal youth at his disposal to be spent after his ordinary strength is exhausted. In a greater or less time such an individual will find that his reserve fund has disappeared and that he is a bankrupt in physical energy. It is enough that the physician must by every means in his power combat the excessive use of alcohol and morphin. It is little less than a crime that greedy manufacturers should purvey to ignorant persons remedies which are capable not only of doing harm by expending the individual's strength, but which also tend to develop in him habits which sap his mental and moral development and render him a slave to the use of stimulants, and this being the case let us discourage those manufacturers and vendors who advertise such products to the laity.

PREDISPOSING INFLUENCES IN THE DEVELOPMENT OF TYPHOID FEVER.

Although we have very definite information in regard to the micro-organism which produces typhoid fever and of the fact, which has been proved beyond all doubt, that the most common means by which it gains access to the body is in food and drink, and again while we recognize that the disease can be largely prevented by the disinfection of the discharges of the typhoid patient whenever he is met with, we do not know as much as is desirable concerning those influences which predispose individuals to infection by the bacillus of EBERTH. It is also a well-recognized fact among physicians, that out of a given number of persons exposed to infection only a certain proportion will become ill because of natural or acquired immunity, but the point as to whether typhoid infection can occur through sewer gas or the inhalation of bad air from decomposing fecal matter is still a matter of dispute. In all probability the inhalation of such impure air simply decreases the vital resistance of the individual so that he is unable to withstand the attack of the micro-organisms which he has taken into his body by other entrances than that of the respiratory system.

Our attention has been called to this matter by a recent discussion before the Royal Medical and Chirurgical Society of London upon the prevention of enteric fever. In the course of this discussion after the importance of disinfection of the discharges and clothing of the patient had been considered, Dr. PAYNE expressed the belief that the theory of infection by the inhalation of the typhoid organism was worthy of credence and Dr. TIVY, who followed him, endeavored to prove that this view was substantiated by the recent epidemic of typhoid fever at Clifton, England, although Dr. DAVIES, the medical officer of health, had conclusively traced it to a polluted milk supply. Dr. TIVY asserted that this epidemic was due to sewer gas poisoning arising from want of ventilation of drains, the foulness of these drains being increased by the drought which had been present during August, September and October. As a result of this the sewer gas found its way back into the houses, especially those situated at the highest parts of the drain.

It was thought by some of those present that Dr. TIVY's standpoint in this matter was a false one and that he had not advanced any strong reasons for his belief. In this connection, however, it is interesting to recall experiments which were made some years ago (1894) by ALESSI, an abstract of which was published in the *Centralblatt für Bakteriologie*, in 1894. In connection with his researches, made in the Hygienic Institute of the University of Rome, this investigator used rats, guinea pigs and rabbits in an attempt to determine the influence which exposure to a vitiated atmosphere would produce in rendering animals susceptible to infection. The rats were placed in a cage with a perforated bottom, and this was placed over the opening of a privy, while the guinea pigs and rabbits were placed in similar receptacles in which their own excreta was allowed to accumulate. When these animals were inoculated with a small quantity of a culture of typhoid bacillus they died within twelve to thirty-six hours, although the same dose of the same culture injected into control animals produced no injurious effect. In the animals which succumbed to typhoid infection there was found a hemorrhagic enteritis, an increase in the size of Peyer's glands and in the spleen, and typhoid bacilli in the blood, liver and spleen. The time required to produce this predisposition for typhoid infection as quoted by STERNBERG was from five to seventy-two days for the rats, seven to fifty-eight days for the guinea pigs, and from three to eighteen days for the rabbits. ALESSI also determined the fact that this increased susceptibility to infection decreased after a time. This is interesting in view of the fact that human beings also seem to become habituated to breathing an atmosphere containing sewer gas, so that they are less susceptible to infection than those who have recently arrived in the neighborhood. We think, therefore, that TIVY's belief that sewer gas may produce at least a predisposing influence is correct.

Numerous other instances in which human beings have been exposed to a vitiated atmosphere and have been taken ill with typhoid fever might be cited. These have been reported by BUDD, BOUCHARD, MURCHISON, LIEBERMEISTER, LANDOUZY and others. HENRY quotes two of LANDOUZY's cases which are of considerable interest. In one of these a man of 25 years, living in a family of ten individuals, all of whom used an identical diet and drink, slept in a room the air of which was contaminated by the ventilating pipe of a public water-closet, and suffered from typhoid fever while all the rest of the family escaped. The second case was that of a girl of 15 years who lived in a family of five individuals and was exposed to the air from a similar pipe and became ill with the disease.

Perhaps the most interesting of these cases is another one reported by W. V. KEATING in the "Transactions of the College of Physicians of Philadelphia," for 1879. In this instance four women who returned to their home, which had been tightly closed for two months, were attacked with typhoid fever. The house was filled with a foul odor and an examination proved that the family had been " actually living in a sewer," there being no traps to the basins and the sewer gas having free entrance to the various apartments of the house.

Neither the experiments of ALESSI nor the cases which we have cited prove, as we have already stated, that typhoid infection takes place by the respiratory tract. They simply indicate that by such means a predisposition to the disease is developed, or to speak more correctly its vital resistance to a filth disease is lost.

PREMATURE BURIAL.

There are probably few persons endowed with lively imaginations who have not at some time in their lives had grewsome fancies about being buried alive, that is if the idea has ever been suggested to them. It forms the theme of many sensational tales of fiction, and is so much a matter of common belief that few would be disposed to question its possibility, or its occasional occurrence. In certain continental European cities this possibility is so fully credited that waiting vaults or guarded and watched mortuaries are kept up at public or private expense in the cemeteries, where all bodies are kept for a certain period before interment, so as to prevent any such occurrence. These are not generally so managed as to insure absolute safety from such accidents, yet they relieve the public apprehension, and may under certain circumstances be occasionally, though it must be very rarely, effective in preventing a premature burial.

In one of our English contemporaries, the *Medical Press and Circular*, there have recently appeared some articles and communications on this subject which indicate the interest the subject excites in the medical profession, as well as the difference of opinion that exists in regard to it. One writer doubts that a single well authenticated case of actual burial of a living person has ever been satisfactorily proven; others consider it not only a possible. but a much more common, occurrence than is generally supposed. From what we know of the possibilities of the trance conditions one is hardly prepared to absolutely deny that burial might occur before death, but that this has often occurred except it may be in times of panic from epidemics is questionable enough, and Dr. WALSH is justified to a certain extent in his doubts as to the evidence in the reported cases. The fact that one writer claims to have received sixty-three letters from persons who had escaped living burial is of less weight inasmuch as no details are given, and the natural love of narrating the marvelous or the unusual is a factor to be calculated with in such testimony.

That premature burial may occur, however, is in its way a presumption that it has occurred and may happen again under circumstances that favor such a dreadful accident. The difficulty in some cases of determining whether the condition is actual death or only a suspension of the vital activities with a possibility of their full reinstatement is very great, and, it is claimed by some, is practically impossible under ordinary conditions and with the usually available means. The possibility of premature burial can therefore be reasonably admitted. and all the more so in cases of epidemics that cause general panic and hurried and unceremonial interments, and also in cases of infectious diseases occurring sporadically but which for reasons of public safety require a hasty burial. The only real universal practical test is commencing decomposition, though others are generally possible and effective, and it is therefore impossible that such an accident as the burial of a living person can often occur. The experience of the waiting or observation mortuaries in some European cities supports this view, though their continuance implies that the belief in their utility maintains itself in spite of the rarity of occasions.

The most elaborate provision against living burial is one recently announced by a Mr. CARNIS of Paris, which he calls "Karnice," and which is to render all burials provisional, as it were, for the person entombed, while still inviolate to all the rest of the world. The apparatus is to be attached to the coffin for a certain period after interment, is set in action by the least movement of the supposed corpse, while impossible to be tampered with by outside parties; it gives an alarm and admits light and air to the buried person; is cheap and easily adapted, and can be used repeatedly, so that its employment would only cost a slight rental, and a few such apparatuses would suffice for a large cemetery. If it is all that its inventor claims, it would appear to be almost an absolute safeguard against death from premature interment. On the other hand, it would seem that it might be liable to give false alarms, if by gaseous decomposition or any other cause a movement of the corpse should take place, though this might perhaps not outweigh or seriously affect its value in the minds of those fearing the accident of being buried alive. It is not improbable that many of the dislocations or derangements of bodies. found on exhumation. are due to the causes alluded to, and the possibility of their occurrence should always be taken into account.

The horror of finding oneself in a living tomb appeals directly to the imagination of every one; it seems the most terrible of all possible deaths. There is, however, another way to look at it when the physical conditions are considered. The air space in a tight coffin under five feet of earth is limited, not over two or three cubic feet at the utmost outside of the space ordinarily occupied by the body. Unless consciousness returned simultaneously with respiration, asphyxia might possibly precede it and annul it—there might be some evidences of convulsion that might be interpreted as voluntary movement, but they are not necessarily indicative of such. The cases where consciousness exists throughout must be rare, though they have been made much of in fiction, and are popularly believed to be almost the rule. It is no comfort to think that any one can be buried alive, but it is better to believe, as the facts warrant us, that the long lingering death in hopeless horror, and the powerless anticipation of the fate are still less probable events.

With the modern methods of preservation of remains which are so often employed, living burial is impossible and we do not hear of any accidental homicides brought about in this way, and with reasonable delay and care the possibilities of premature interment are reduced in all cases to almost nothing, if not absolutely destroyed.

THE CAFFREY BILL.

It is noted with some surprise that the health bill introduced by Senator CAFFREY, and proposed by him in the Senate, is not the result of any medical opinion in New Orleans or in Louisiana.

It seems that the Senator was last summer stopped by some local quarantine in an obscure town in Louisiana, and found it impossible to pass through the local regulations, whereupon the Senator as soon as Congress convened, introduced a bill calculating to prevent these arbitrary actions on the part of local boards.

We are informed by competent authority from New Orleans that no medical man in that State is believed to have recommended the bill.

CORRESPONDENCE.

What is to become of the Physician?

ORAN, MO., Jan. 24, 1898.

To the Editor:—In studying your editorial, "Is the apothecary doomed?" I am confronted with the question: What is to become of the physician? The same processes which seem to be destroying the apothecary are at work to destroy the doctor. The free dispensaries, colleges and hospitals, are gradually absorbing the patronage of physicians. No one will patronize the corner physician so long as he can get medicine and advice free at the dispensary. Some how or other I have not been very uneasy about the druggist or apothecary. I have always patronized him. Some few druggists have not treated me fairly; they have prescribed for my patrons, and I have some times filled my own prescriptions, but I never had any animosity toward druggists as a body. I dislike the substitutor or prescribing druggist, but I have always thought it necessary to have a good drug store in my neighborhood, and in order to do this I have always patronized my home druggist. I had rather make out my own prescription and have it filled by my home druggist, and I do not believe the wholesale men will gobble up all the trade and drive the corner druggist to the wall. There is going to be a reaction one of these days. There are a great many pharmacists in this country who have not studied pharmacy with the intention of being only salesmen for big firms; they have studied with the idea of doing a business of their own and they will not sit idly down and let their avocation be destroyed. The same thing applies to us. We will not sit still and allow the hospital man to absorb our business. We will quit patronizing specialists. We will quit sending our patients to hospitals. We will organize and fight for our rights. We will not submit to monopoly. The bulk of medical knowledge today is the fruit of the country practitioner's labor. He "laid the foundation and another has built thereon." Oh, no, the wholesale manufacturer can not absorb the druggist: nor can the hospitals and free dispensaries obliterate the country practitioner. As long as the "Upper Ten" (so called) treated us fairly we submitted kindly to his pretense of superiority, but when he assumes the right of absorbing the whole business by the tricks of trade and a cut in prices, or any other underhanded trickery, he will find one of the most vigorous kicks coming imaginable. The druggist and practitioner were once true friends and their interests were the same, and when they see that there is a plan being formed to exterminate them, rest assured they will not submit to it. Nicely prepared tablets, triturates, or what not, can be prepared by one capable of making them at all, one place as well as another, and the corner druggist does not have to give up his business and hire out, neither does the country practitioner have to appeal to his city brother for aid. He can do as the pioneers did before him. He can perform his own surgical operations and leave the specialist to hunt up his cases wherever he can find them. If the wholesalers understand their position and how they obtained it, they had best look a "leedle ouit." Do not shove us too near the wall. We have some rights that must be respected. A word to the wise ought to be sufficient.

Respectfully, W. P. HOWLE, M.D.

"Foreign Medical Training for Recent Graduates."

ELIZABETH, ILL., Jan. 18, 1898.

To the Editor:—In an article written on the above subject by W. S. Caldwell, M.D., from Vienna, the writer would like to take a few exceptions. Quoting from Dr. Caldwell's article in the JOURNAL of Jan. 15, 1898: "Not because the subject is better understood or more skilfully taught than by our best teachers, but because the clinical material is much more abundant here and can be much better utilized for clinical purposes, and the number of those to be taught are much fewer in proportion to material available." Also: "There may be just as good courses as these at home, but I have not been able to avail myself of them *for I have not been able to find them.*" I simply wish to say that I for one *have* found "just as good courses as these at home," and though I have not myself enjoyed the "merits of Vienna" (?) I have enjoyed personally Czerny's clinic of Heidelberg and Schede's clinic of Hamburg, in the "Neuen Allgemeinen Krankenhause." My parents being of German birth, I of course had the German language at my command, so that my observations could not lack for want of this advantage to read and speak German. All the advantages enjoyed at Vienna and Paris, as given by Dr. Caldwell, are enjoyed at the Medical Department of the Tulane University of Louisiana, located at New Orleans; also at the New Orleans Polyclinic like advantages are to be obtained. These places of learning have at their disposal all the clinical material of the Charity Hospital, *as they think best for teaching purposes.* The proportion of medical students (in 1891 number 374) in proportion to the clinical material at hand compares with any, as the records of the hospital will show that during 1891 a grand total of 23,537 patients were treated. Medical students spend half of each day in the hospital for the clinical study of disease and to treat the same under the guidance of equally as great instructors as those mentioned by Dr. Caldwell.

Who that has had the advantages of these instructors at this institution will not remember with pride, the venerable dean, Professor Chaillé, who taught us (diagnosed with us) our first lesson in diagnosis and in pathologic anatomy. In clinical medicine who does not think of Professor Elliot and Professor Joseph Jones. In surgery, how well T. G. Richardson, Edmond Souchon, Samuel Logan and Albert Miles will compare. True, some of these are gone before us, but in their place we find others equally pure in the faith, as Rudolph Matas, etc. I have mentioned names because Dr. Caldwell brings forth names to worship, and why not worship our own heroes. I am convinced that in our medical centers in this country, we are equal in every respect. I specially mention the Medical Department of the Tulane University and its equal advantages, because I personally know that the clinical advantages at the New Orleans schools are not surpassed anywhere, and especially not in clinical or internal medicine. The Louisiana State law confers this privilege on the medical profession, to properly educate doctors. And again, if Dr. Caldwell prefers the "French professors," he will find a "French born teacher," who "explains every step of his operation," in the personage of Professor Souchon, in the above Medical Department of the Tulane University, who is professor of surgery and learned to his finger tips. There may be other schools in this country equally as well prepared to stand equal in any branch of medicine, so that "recent graduates," undergraduates and old doctors need not cross the sea to get superior medical information.

PHILIP ARNOLD, M.D.

Do Adult Squirrels Castrate Each Other.

CHICAGO, ILL., Jan. 25, 1898.

To the Editor:—In the article on eunuchs in the previous number of the JOURNAL I stated that when adult gray squirrels engage in battle one often castrates the other. I had this information from a distinguished naturalist, who inferred it because a considerable portion of wild squirrels are found to be emasculated.

Dr. A. S. Allen, an interne of Mercy Hospital, Chicago, furnishes the following facts observed by him which partly contradict the naturalist.

Dr. Allen says that although about one-third of the wild squirrels killed by hunters are found to be castrated, yet he thinks it is not done in fighting. He says that a number of gray squirrels lived protected in the trees about his former residence. A female raised a litter of young in a tree close to the house. One day when the young were about one quarter grown he observed the male trying repeatedly to enter the nest, but the female, which in that species is the largest of the two, fought him off and drove him away. This repeated several times, and the male finally desisted. Some time later the female went away apparently to gather food. Before she returned the male reappeared, entered the nest and created a great disturbance there, so that the Doctor climbed the tree and examined the young. He found four young quarter-grown males and one or two females. Three of the young males had been freshly castrated, the old male squirrel having bitten their scrotum and testes cleanly and smoothly off with his sharp incisors.

In a fight between two full grown males it would seem very difficult for either to hold the other still enough to admit of biting off his scrotum, but the young are more helpless; hence it is probable that all the castrated squirrels taken by hunters are mutilated in infancy by the old males. It is a curious instinct and one difficult to account for by natural selection, since it would not seem to result in the escape of the strongest nor the fittest from mutilation, and consequently would hardly tend to benefit or perpetuate the species.

Dr. Allen says in all his hunting he never found a fresh castration wound in an adult, so that he believes the operation is done only on the very young. He is of the impression that the castrated ones grow larger, and are apt to be fatter than the perfect males.

EDMUND ANDREWS, M.D.

Leprosy in Norway.

NEW YORK, Jan. 8, 1898.

To the Editor:—Under "Leprosy in Norway," Dr. W. S. Caldwell writes to the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Dec. 18, 1897: "Speaking to my host (Hansen's first assistant) in a congratulatory tone of our almost entire exception from the disease in the United States, he answered me warmly and decidedly, saying: 'You have plenty of lepers in your country, but your physicians do not recognize the disease, and allow the patients to run at large, while here in Norway we diagnose the malady in its early stages and isolate the patients.' In a late visit of Dr. Hansen to the United States, he told me that the Doctor found three cases in the hospitals in Chicago, and twice as many in New York, as well as encountered several cases of true leprosy upon the streets of each city, all of whom were being treated for lupus, syphilis or some other form of skin disease."

This direct slap by a Norwegian physician (Hansen's first assistant) at the intelligence of American physicians is in keeping with what we know of the general behavior of the Scandinavian sages toward ordinary medical mortals. I know from the most creditable source, that these flattering opinions were expressed to the whole medical world, as far as it was assembled at Berlin, and produced a general feeling of disgust: "Norway is interested in the leprosy question only as the world's teacher; she has nothing to learn." This truth was continually flaunted in the face of the Conference, whosoever does not recognize and appreciate the superiority, in point of leprosy, of these superior instructors, is stupid, and stupid people, as one of them frankly told me, ought not to be helped, they do not deserve it.

I venture to affirm that not only the ordinary practitioners of those parts of our country where the Norwegian immigrants stop, are the superior of the general practitioners of Norway in every way, but that the medical men of our large cities (New York and Chicago are quoted) *do not* diagnose the leper as lupus, syphilis or some other form of skin disease, as Hansen is reported to have told his first assistant.

Is your correspondent quite sure of his statement that Hansen mentioned such errors of diagnosis in the large hospitals of New York and Chicago? If he visited these hospitals there were American physicians with him, who might now come forward and confirm or deny the accuracy of Hansen's assertions.

ALBERT S. ASHMEAD, M.D.

Department of Public Health.

CHICAGO, ILL., Jan. 11, 1898.

To the Editor:—I have been reading with interest the various notices in the JOURNAL relative to the establishment of a Department of Public Health at the National Capitol and the furtherance of such legislative enactments as will tend toward the preservation of the public health. Early in 1893 I advocated such measures and devoted attention to the question in a treatise on Asiatic cholera written and published by me in that year. There is one pronounced element of danger in connection with the favored change and to this I would respectfully call the attention of my professional colleagues. This is the fact that peradventure some "practical politician" would be made the Secretary in charge of the new portfolio instead of a medical hygienist.

The ridiculous and unfortunate state of affairs that would be induced under these circumstances need hardly be dilated upon. The proper person to fill the new position must be a physician, and he must be a physician who is high authority on questions connected with preventive medicine.

JOHN A. BENSON, M.D.

Professor Physiology of the Nervous System in the College of Physicians and Surgeons, Medical Department State University, and Professor of Psychologic Jurisprudence in the Chicago School of Law.

The Antivivisection Bill—Necessity for Action.

BALTIMORE, Jan. 17, 1898.

To the Editor:—I hope that the JOURNAL will keep up its campaign against the antivivisection bill in the Senate (1063). I am writing letters to the physicians in different States urging them to write themselves and induce others to write to their senators urging them to oppose the (Gallinger) bill. Personal letters from those known to have influence with senators will accomplish more at present than protests from societies. Would it not be worth while to call attention in the JOURNAL to the importance of such personal appeals to senators? Very sincerely yours, W.

Indiana State Medical Society.

INDIANAPOLIS, Jan. 24, 1898.

To the Editor:—Owing to a delay in rebuilding the leading hotel of Evansville, the profession of that city have decided that it would be unwise to attempt to hold the annual meeting of the Indiana State Medical Society there this year. At a meeting held today in the office of the president, Dr. W. N. Wishard, attended by the officers and chairmen of the various committees, it was voted unanimously to transfer the meeting to Lafayette. The date remains unchanged, May 5 and 6.

By kindly giving this notice a place in your paper you will confer a great favor upon the profession of Indiana.

Very respectfully, F. C. HEATH, M.D.

Must Join State or Local Society.

GLENWOOD SPRINGS, COLO., Jan. 19, 1898.

To the Editor:—Is it compulsory for me to belong to a medical society, either local or State, before I can join the AMERICAN MEDICAL ASSOCIATION? We have a State but no local medical society. Yours truly,

L. A. ROBINSON, M.D.

ANSWER:—The bylaws require that membership by application can be obtained only by having the application certified by the president and secretary of a local or State society in affiliation with the AMERICAN MEDICAL ASSOCIATION.

Concerning an Alleged Birthmark, "Snake" eye.

MILWAUKEE, WIS., Jan. 18, 1898.

To the Editor:—There are several thousand physicians in this country and no doubt several hundred who may be reached within an hour or so of travel from the office of the gentleman in Waukegan, Ill., who are capable of properly cataloguing his case of "snake" eye within some one of the not uncommon congenital anomalies, probably congenital coloboma or fissure of the iris. If the Doctor would give the lad the benefit of a consultation with an oculist, he would not only learn something but help his "myopic" patient whose "eyes are elongated antero posteriorly."

Courteously yours, H. V. WÜRDEMANN, M.D.

The Yellow Fever Microbe.

NEW ORLEANS, LA., Jan. 22, 1898.

To the Editor:—New Orleans Medical and Surgical Journal for February, 1898, will contain an article upon the "Serum Diagnosis of Yellow Fever," by Archmaid and Woodson of New Orleans, La. These observers, working in the laboratory of the Louisiana State Board of Health, report the occurrence of a characteristic agglutinative reaction of yellow fever blood with the bacillus icteroides in over 70 per cent. of a series of fifty cases with which the experiments were conducted. They consider the reaction of decided value in the diagnosis of early mild and atypic cases. Yours very truly, R. S. W.

ASSOCIATION NEWS.

Prof. Samuel C. Busey, who was elected to deliver the annual oration on State Medicine, has resigned the position. The members will learn this with regret, and also that the ill-health of Professor Busey was the cause of his resignation.

Section on Materia Medica and Therapeutics.—The following papers and discussions have been promised for the meeting at Denver, Colo., June 7-10, 1898:

Yellow Fever; discussion by Surgeon-General Geo. M. Sternberg of Washington, D. C.; Prof. John Guiteras of Philadelphia, Sollace Mitchell of Jacksonville, Fla.; T. S. Scales of Mobile, Ala.; G. B. Thornton of Memphis, Tenn., and H. M. Bracken of Minneapolis, Minn.

Aims of Modern Treatment of Tuberculosis, by Prof. Edwin Klebs of Chicago.

Serum Therapy of Tuberculosis, by Prof. S. O. L. Potter of San Francisco.

The Use of Remedies in Diseases of the Heart and Blood Vessels, by T. Lauder Brunton, M.D., D.Sc., F.R.S., London, England.

The Mescal Button, by Prof. D. W. Prentiss of Washington, D. C.

The Modern Intestinal Antiseptics and Astringents, by Wm. Frankhauser, New York.

To What Extent is Typhoid Fever Favorably Modified in Its Course, Duration, Termination or Sequelæ by the Administration of Drugs, by Frank Woodbury of Philadelphia.

Strychnin, by J. N. Upshur of Richmond, Va.

Methods of Teaching Materia Medica and Therapeutics, by Prof. G. H. Rohé of Baltimore, Md.

The Use of Electricity by the General Practitioner, by Caleb Brown of Sac City, Iowa.

J. E. Atkinson, Baltimore; Henry Beates, Philadelphia; T. M. Balliet, Philadelphia; Geo. F. Butler, Chicago; J. Solis Cohen, Philadelphia: N. S. Davis, Jr., Chicago; P. J. Farnsworth, Clinton, Iowa; E. D. McDaniels, Mobile, Ala.; J. E. Moses, Kansas City, Mo.; Jos. Remington, Philadelphia; L. E. Sayre, Lawrence, Kas.; H. V. Sweringen, Fort Wayne, Ind.; E. L. Stephens, Fort Worth, Ind.; Leon L. Solomon, Louisville, Ky.

The Chairman will be pleased to receive and place upon the program subjects for discussion and papers.

JOHN V. SHOEMAKER, Chairman,
1519 Walnut Street, Philadelphia, Pa.

SOCIETY NEWS.

The Kalamazoo Academy of Medicine of Kalamazoo, Mich., met in annual session in their rooms Jan. 4, 1898. The Society's rooms are in the Public Library Building, a gift to the city of Kalamazoo by Dr. E. H. Van Deusen, a member of the Academy, and as a meeting place for a medical society, will compare favorably with the rooms of any similar organization in any of the metropolitan cities. There were eighty-six members present at the afternoon session. The report of the secretary showed 105 active and 18 corresponding members and 1 honorary member. The treasurer's report showed a good working balance. In the afternoon the following papers were read by the writers: "The Newer Surgery of the Radical Cure of Hernia," by Dr. E. Wyllis Andrews of Chicago; "Toxic Amblyopia," by Dr. Fleming Carrow of Ann Arbor; "The Regular Profession of Medicine," by Dr. W. H. Haughey of Battle Creek. At the evening session Dr. J. M. Elliott, the retiring president, gave an address, which was followed by a banquet at the American Hotel. There were seventy-six members present at the banquet. The following officers were elected for the ensuing year: President, William M. Edwards; first vice-president, J. M. Rankin; second vice president, Wilbur F. Hoyt; secretary, A. D. Lake; treasurer, O. B. Ranney; librarian, E. H. Van Deusen; censors for three years, F. C. Myers and C. W. Huff.

At the Annual Election of the New York Medical League Jan. 14, 1898, the following officers were chosen. The medical profession shows the greatest and meanest of followers, and unfortunately, the latter have had too much influence, from the simple reason that the bad are always active and the good passive. The League believes that the profession can be restored to its former high position and the names of the officers for the year are sufficient evidence of the earnest and determined opposition which awaits the schemes of the treacherous and the self-seeker. Manhattan Section New York Medical League: President, Joseph E. Janvrin; vice-president, Frederick R. Sturgis; recording secretary, J. C. Schminke; corresponding secretary, Douglas H. Stewart; treasurer, E. Eliot Harris; trustees, Frederick H. Wiggin, E. J. Gallagher, S. Kennedy; finance committee, W. H. Weston; executive committee, J. Smith Peterson, J. E. Messenger, George D. McGauran, Wickes Washburn: delegates, Adolph Rupp, Heinrich Stern, Joseph H. Byrne.

PUBLIC HEALTH.

The results of Sanitation in the German army for the period of the past thirty years show that twenty-three thousand fewer men fall ill every year than formerly and that twenty-two hundred fewer die.

Loomis Sanitarium for Consumptives.—On January 15 a training school for nurses was opened at the Loomis Sanitarium, Liberty, N. Y. The opening class had thirteen members. While these nurses will receive regular training such as is given in other schools, special attention will be paid to instruction in the care of cases of tuberculosis. This departure in the way of nursing is a new one, and is justified by the ever increasing demand for nurses for this class of patients. It is believed that these nurses can be constantly and advantageously employed in health resorts and as traveling companions for young people in incipient stages of the disease. The course will be of two years' duration.

Still the Plague.—The fighting in India has monopolized the attention of the racialists of at least one hemisphere so that plague ravages in Poonah, Bombay and the Deccan have passed unnoticed. Thousands have fled from Poonah and Bombay, in each of which cities the weekly mortality is from five hundred to six hundred. The aid of the military has again been invoked. Poonah City is divided into ten wards, and in each ward an officer has thirty soldiers under his command. Every morning the plague centers are cordoned. No one is allowed to leave them except after having been medically examined. In the mean while each house is searched, and the plague-stricken are taken to the hospitals and their houses are disinfected and whitewashed. This system is working well, and the outlook is improving. A report of the epidemic in Damanu, Portuguese India, with the verification of the London *Lancet*, December 18, gives cheerful accounts of the value of inoculation lymph, chiefly among the Parsee community, who at an early stage acquiesced. Between March 26 and the end of May, the uninoculated furnished a mortality of 24.6 per cent., while the ratio of the inoculated was 1.6 per cent. The demand for lymph necessitated the substitution of the weaker article for the stronger and gave a decided accentuation in favor of the latter. Still even there the case mortality showed a corresponding wavering against the expectant treatment.

The Relations of Medical Societies to the Public Health.—The Presidential address of Dr. Edward Seaton, before the Society of the Medical Officers of Health of Great Britain, considered the subject of the work of the medical societies in its relation to public health. Much of the work of the pathologic, medical and clinical societies, and the unremunerated researches of individuals, whether undertaken in a purely scientific spirit or with an immediate utilitarian motive, had contributed greatly to the promotion of the ends which their society more directly or exclusively had in view. But the Epidemiological Society, which occupied a position intermediate between the strictly medical societies and their own, was above all others engaged, as its objects stated in the charter of incorporation showed, in pursuits identical with theirs. Then there were the British Institute of Preventive Medicine, the Sanitary Institute, the Institute of Public Health, the Jennerian Society, and the British Medical Association, which, though primarily a union of medical men, had a public health section at its annual congresses. The Sanitary Institute and one or two others embraced men of all professions more or less interested in public health, and there was no doubt that much advantage accrued from association with architects, engineers, chemists, geologists, etc., as well as from the museums and exhibitions promoted by some of these societies. Their various transactions and journals were of great value, yet members of their own society who belonged also to the Epidemiological Society and the Sanitary Institute could not but consider that the multiplication of societies involved a loss of power. The Maidstone epidemic had shown how different was the sanitary examination of water-supplies from the merely chemic question of the analysis of adulterated foods and, also, how important was a knowledge of the normal condition of a given water and of the contingent dangers to which it was exposed apart from actual contamination. Chemic analysis, without bacteriologic examination and other considerations to which he had alluded, might tend to a false sense of security, but taken in conjunction with these it should serve as a delicate barometer and an indication of impending danger. But while such catastrophes aroused public attention owing to their suddenness, it ought to be known that there was in some districts a constant prevalence of typhoid fever attributable to other causes than the pollution of a certain public water-supply, and the record and publication of the distribution of any local excessive incidence of this and of other preventable diseases, as was done by the Surrey County Council, by stimulating preventive action contributed in an important degree to the averting of such outbreaks and to the saving of life without the supervention of those terrible lessons. Such a society as he had indicated should include all the leading epidemiologists who, without belonging to the public service, had made the subject of communicable diseases their special study, and its inauguration would, he repeated, be a fitting and worthy commemoration of the jubilee of the institution of medical officers of health.—London *Lancet*.

A Serious Epidemic of Typhoid Fever Due to a Contaminated Water Supply.—All England has been excited and concerned by the epidemic of typhoid fever which is attracting so much attention at Maidstone, Kent. There have been 1,700 cases in that town and its vicinity and fifty deaths have occurred. The epidemic has spread at the rate of 120 cases daily, and the authorities are working energetically in their efforts to crush out the fever. The hospital accommodation is inadequate, temporary hospitals are being erected and the schools are being converted into sick wards. There have been numerous cases of typhoid fever throughout the country among people who recently visited Maidstone. The town authorities of that place are held responsible for the outbreak, owing to their refusal to renew the appointment of a watchman for the water supply at a salary of $200 yearly. Quite a number of difficult conditions have been surmounted by the authorities. The fitting up of emergency hospitals has been no light task. The houses and schoolrooms utilized had not the necessary sanitary conveniences. The work had to be continued day and night without a moment's respite. Nor was it easy to get together some three hundred beds for the patients and to lodge more than one hundred nurses. Then the patients and nurses had to be fed, and this involved the organization of a commissariat department which was altogether out of the ordinary attributes of local administrative work. But soon another difficulty arose. A large amount of linen accumulated which was dangerouly soiled by the patients. If this linen was scattered over the town and washed anyhow and by anybody the consequences were likely to be very serious. The medical officer of health, Mr. Matthew A. Adams, thereupon conceived the idea of establishing a public laundry for dealing exclusively with the infected linen. With the very efficient aid of Mr. Jackling, the sanitary inspector, a steam laundry with all the most recent and improved machinery was promptly opened. Carts are now sent around the town with numbered canvas bags. The linen from each patient is placed in a separate bag, distinguished by its number. On reaching the laundry the bags without being opened are plunged into a large boiler, where their contents are thoroughly disinfected by prolonged boiling. Then only are the bags opened and each article marked with a number corresponding with that of its bag. The articles can be washed in the ordinary manner. But so great is the amount of work that had to be done that it was necessary to establish four large boilers set in solid brickwork, and to put up huge tents seventy-five feet in length in which the linen is sorted. Another great difficulty soon arose. How was so large a quantity of linen to be dried? Fortunately, in a field opposite there were two roast houses for the drying of hops. These curious looking, cone shaped structures are familiar to all who travel in hop-growing countries. In the lower part there is a furnace where smokeless anthracite coal is burnt. Above the furnace and just under the cone-shaped roof there is not a floor, but horsehair matting resting on rafters. It is on this matting that the hops are placed to dry, as the heat passes through readily. For laundry purposes it was necessary to construct a framework all around the roof above this matting so as to hold ropes or poles on which the linen is hung to dry. The *Lancet* states that an official inquiry has been ordered, so that the blame may be located. No doubt the water company will be incriminated in the first instance and the local authorities will be held blameworthy for the prolonged continuance of the epidemic. The later reports of the medical officer of the Local Government Board record epidemics which prove incontestably that the grossest and most culpable neglect prevails as regards a number of our public water services, whether the supply is derived from springs, deep wells, gathering grounds or streams; and we fear that at times the extent of the negligence and danger bears a definite relation either to the amount of pecuniary profit actually derived from the sale of the water to the public or to efforts made to render the profit greater. This is a state of affairs which has hitherto been all but ignored by parliament in granting powers to water companies, whether municipal or private, and it is to be hoped that the attention which has been drawn to the subject by the Maidstone epidemic will lead to a much more careful watch than has usually been exercised over the powers and liabilities conferred and incurred in bills as to public water supplies. The population of Maidstone Borough is estimated at about 32,000.

NECROLOGY.

Edmund Carlyle Vermeulen, M.D., College of Physicians and Surgeons, New York, 1860, died in Philadelphia, his home, January 21. He was the son of a Dutch Reformed clergyman and was born in New York City in 1833 but lived in Hoboken, N. J., where he had been an apothecary previous to his graduation in medicine. After a competitive examination he was appointed as Assistant Surgeon, U. S. N., Nov. 16, 1861 and rose to the rank of Master Jan. 24, 1862. He was in active service throughout the war with a record of executive ability and served at various naval stations until 1882 when he was retired. It is told that while serving on the *Granite City*, the vessel with all the officers and men were captured by the Confederates. He was a prisoner four months. His health had been poor for some years before his death.

Cornelius Van Keuren, M.D., died at his residence in New York City, January 21. He was born in old Greenwich village, once a section of the city where the Holland Dutch element was somewhat prominent. At the out-break of the war he joined Duryea's Zouaves and was mustered out at the expiration of his term of enlistment. In 1874 he received his degree from the College of Physicians and Surgeons, New York, and many years ago was appointed a surgeon in the Police Department, retiring with a pension, last October.

Caroline M. Dodson, M.D., Woman's Med. College, Philadelphia, 1874, died January 9. She was born in Keosauqua, Iowa, 1845, and after graduation at once entered the profession in Philadelphia. As a platform speaker on educational and temperance topics she soon became conspicuous. In 1891 she became president of the Woman's National Health Association, without a surrender of her work in the Woman's Suffrage Association or of her interest in the Baptist Sisterhood and Sabbath school teaching.

Ernest Ringer, M.D., a licentiate of the New York County Medical Society, 1874, died at his home in New York City January 9. A native of Germany, with a university education, he came to this country about fifty years ago, and here continued in practice until within about ten years of his death at the age of 77 years. At one period of his life he was a medical writer, holding somewhat peculiar views upon therapeutics.

William H. Robb, M.D., Albany, N. Y., 1865, of Amsterdam, N. Y., died January 12 in Selma, Ala., aged 54 years. He was a prominent member of the American Medical Association and a fellow of the New York State Medical Association, of which he was one of the founders. His illness began at the annual session of the latter association last October, and with an attack of influenza subsequently superadded, put him beyond the possibilities of ultimate recovery. A popular citizen, judicious sanitarian, and valued contributor to medical literature, his place can not well be filled.

Orange W. Braymer, M.D., Jefferson, 1888, member of the surgical staff of the Cooper Hospital, Camden, N. J., died from blood poisoning January 9. The cause was thought to be due to an inoculation of a scratch upon the forehead after an operation at the hospital performed by him about two days before.

Lewis W. Pendleton, M. D., Albany, N. Y., 1864, of Portland, Maine, and house physician of the Flagler Hotel, Florida, died at the Palm Beach Inn, Jacksonville, Fla., January 12, aged 53 years.

Henry S. Dean, M.D., Jefferson, 1852, born in Holland, Mass., died January 14, aged 74 years. He began practice in South Coventry, Conn., and there resided until his death. He was an active member of the Connecticut State and of the Tolland County Medical Society, besides having served in the Connecticut General Assembly in 1872-3.

C. E. Ulmer, M.D., died in Atlantic City, N. J., of tuberculosis, aged about 40 years, on January 15. He was at one time county physician of Atlantic County, N. J.

F. R. v. Schneider, Vienna, aged 85 years. A laboratory accident in 1871 injured both eyes and arrested his brilliant scientific career as professor of chemistry, etc., investigator and author of works on chemico-legal and hygienic questions.

Since then he has occupied a prominent position in sanitary and hygienic councils, his services winning him many honors, among them a title and seat in the legislature.

Samuel P. Harned, M.D., N. Y. University, 1868, for many years Township physician, died at his home in Woodbridge, N. J., January 18.

Henry S. Dean, M.D., South Coventry, Conn., January 15, aged 74 years.——F. K. Hall, M.D., Pittsburg, Pa., January 12, aged 71 years.——W. C. Nixon, M.D., Shannon, Ga., January 13, aged 55 years.——J. H. Otto, M.D., Milwaukee, Wis., January, 15, aged 36 years.——W. H. Robb, M.D., Amsterdam, N. Y., January 12, aged 54 years.——William Henry Sibert, M.D., Kansas City, Mo., January 13, aged 48 years.——J. C. Thompson, M.D., Rollersville, Ohio.——J. W. Waters, M.D., Lexington, Ill., January 15, aged 70 years.——James F. Barron, M.D., Clinton, Ga., January 18, aged 70 years.——C. E. Ulmer, M.D., Atlantic City, N. J., January 15, aged 40 years.——Lysander T. White, M.D., Cortland, N. Y., January 16, aged 55 years.——Angel Vasquez, professor of organic chemistry and pharmacy at Santiago, Chile. A physician and hygienist of national prominence.——C. B. Day, M.D., Glencoe, Minn., January 13.——J. C. Thompson, M.D., Rollersville, Ohio, January 4, aged 76 years.

Orange W. Braymer, M.D. At a special meeting of the District Medical Society of Camden County, N. J., held January 10, the following was adopted:

We, the Camden District Medical Society assembled, called together by the sudden death of our esteemed associate, Dr. Orange W. Braymer, do hereby acknowledge, with mingled grief and humility, our child-like misapprehensions of such transitions in life.

While yet in the full vigor of his professional manhood, and while attending the surgical needs of a suffering patient the Angel of Death appeared, and very soon carried him to the bourne "Where his weary brain and tired feet, will no longer brave the midnight summons, nor attend the calls of a poor suffering humanity."

Need we recall his manly form and earnest kindly face, or rehearse his many deeds of charity, and devotion to his profession, to remember him. Nay, it is well known by those who knew him best, that his illy-requited devotions to his profession and his patients, his faithful friendships, and conscientious performance of all duties, indicated his true nobility and reflected honor upon us, as well as upon his family, church and State. His life is worthy of emulation, and may its impress be indelibly stamped upon our tablets of memory.

His bereaved family, crushed by the sudden loss of an affectionate husband and father, can obtain consolation alone from that God who as Divine Ruler of the Universe, "knows best how to give, knows best when to take away."

Therefore, as a slight token of esteem and love for our dead, be it hereby

Resolved, That these sentiments so well engraved upon our hearts, be recorded upon the pages of our Society's history and also transmitted to his grieving family as a memento of our sympathy, and be it further

Resolved, That we attend in a body the last sad rites upon our dead brother, and bow with submission and humility to the will of God our Creator.

O. B. Gross, M.D.
J. M. Ridge, M.D.
D. Benjamin, M.D.
Jos. H. Wills, M.D.
E. E. De Grofft, M.D.
Committee.

BOOK NOTICES.

Transactions of the Medical Society of the State of North Carolina. Paper, pp. 184. Illustrated. Wilmington, N. C. 1897.

This volume is on excellent paper, well edited and of excellent typography, and contains full proceedings of the forty-fourth annual meeting, held at Morehead City, N. C., June 8, 9 and 10, 1897. Among other papers included we note: "When to Operate;" "Surgical Treatment of Hemorrhoids;" "A New Method of Dealing with Inoperable Cases of Cancerous Affections of the Uterus;" "The Ideal Antipyretic;" "The Keystone of the Medical Arch;" "The Microscope in Diagnosis of Malaria;" "An Interesting Case of Appendicitis;" "A New Treatment of Hydrophobia: Report of a Case: Recovery" "Psycho-therapeutics;" etc. An appendix of 48 pages includes the Constitution and By-laws and the Code.

Transactions of the Luzerne County Medical Society, for the year ending Dec. 31, 1897. Paper, pp. 208. Wilkesbarre, Pa. 1897.

The contents of this volume comprise: "The Hygiene of the Jews;" "Progressive Pernicious Anemia;" "Diabetes;" "Intubation and Antitoxin in Membranous Croup;" "The Modern Conception of the Nervous System;" "Operative Interference in Epilepsy;" "Discussion of Measles;" "Fracture of Skull and Treatment;" "Treatment of Phthisis;" "Mastoid Disease Followed by Sinus Thrombosis, Meningitis and Death;" "Traumatic Neurosis;" "Placenta Previa;" "Cerebral Localization;" "Double Consciousness;" "Serum Therapy;" "The Proposed Sanitarium for Tuberculosis at White Haven;" "Hematozoön Malariæ;" "Tetanus;" "Acute Diseases of the Heart;" "Syphilis," and "The Theory of the Extension and Retraction of the Neuron Terminal." The excellent paper and typography make this volume a credit to the Society.

Transactions of the Arizona Medical Association. Paper, pp. 66. Phoenix, Ariz. 1897.

This volume covers the work of the sixth annual session of the Arizona Medical Association, held at Phoenix, Arizona, January 26, 1897. Eleven papers are included.

Transactions of the Mississippi State Medical Association. Paper, pp. 212. Illustrated. Biloxi, Miss. 1897.

Besides the usual reports, etc., found in society transactions, this volume contains the Constitution and By-laws of the Society and the papers read at the twenty-ninth annual session, held at Vicksburg, Miss., April 15, 16 and 17, 1896, twenty-three in number, some with illustrations.

Kalender fuer Frauen- und Kinderaerzte. Von Dr. Med. Eichholz, Bad Kreuznach, und Dr. Med. Sonnenberger, Worms. II Jahrgang. 1898. Kreuznach: Ferd. Harrach. Preis. Mk. 2.50.

This wallet-shaped leather bound volume contains memorandum pages for each day of January, February and March, tables of drugs and doses, pages for filling out with data concerning the patient, numerous short articles descriptive of diseases peculiar to women and children, Prussian rules for physicians, etc., altogether making a handy and valuable compilation for the physician. The matter is printed in German. Three supplements contain memorandum pages for the months April-December, 1898.

MISCELLANY.

Dr. Robert T. Wilson is to succeed his father, Dr. H. P. C. Wilson, as chief surgeon of the Woman's Hospital, Baltimore, Md.

A Change of Name.—The British Institute of Public Health will be styled in future the Royal Institute of Public Health, and Queen Victoria has accepted the office of patron.

Last Year's German Immigration shows a wane. In 1897 it was the lowest since 1874. It aggregated only 23,220 against 32,114 in 1896 and has declined steadily since 1893, when 87,577 left Europe.

Honors After the British Jubilee. The honor of Knighthood has just been conferred by Queen Victoria on Dr. John Struthers, late president of the Royal College of Surgeons of Edinburgh, and Dr. John Batty Tuke, president of the Royal College of Physicians of Edinburgh. Professor Gardiner, dean of the Faculty of Medicine, Glasgow University, has been promoted to be Knight Commander of the Order of the Bath

(K. C. B.), and Professor D'Arcy Thompson, British delegate at the recent conference on the Behring Sea Fisheries, has been appointed a Companion of the same order (C. B.).

The Determination of Sex Theory, associated with the name of Professor Shenck, does not find much favor with savants. With the qualifying *ifs* and the usual loopholes of explanation in problems of the 50 cent. variety, not much can be expected. "Guess," said Sambo, "boy or girl?" "Boy?" "No, guess again." "Then a girl." "Yes, but who told you?" It is to be hoped that we are to have no more depopulating agencies, remote or otherwise.

The Hoff Memorial Fund.—Maj. John Van R. Hoff, surgeon U. S. A., now on duty at Vancouver Barracks, offered to establish a memorial fund for the late Alexander H. Hoff of the medical department of the army. The Secretary of the Treasury has accordingly been authorized to accept from Major Hoff the sum of $1,000 for interest at 4 per cent. The interest accruing from the fund is to be expended under the direction of the chief medical officer of the army for the purchase of a suitable gold medal each year, to be awarded to the graduate of the Army Medical School who maintains the best average standing in class. In case there is no session of the school in any year, a suitable medal is to be secured and presented to the medical officer of the army who during the year shall have performed the most distinguished medical research.

"In Good Health."—The United States circuit court of appeals says, in the case of the Manhattan Life Insurance Company vs. Carder, Nov. 10, 1897, that the term "In good health" is comparative. It does not mean in perfect health, nor would it depend upon ailments slight and not serious in their natural consequences. In construing this term in a life policy, the court goes on to say that it must regard the character of the risk assumed, and that looking at it from this point of view, it would seem that a person was in good health unless he was affected with a substantial attack of illness, threatening his life, or with a malady which had some bearing on the general health; not a slight illness or a temporary derangement of the functions of some organ.

The Bacillus of Whooping Cough.—Advices from Europe announce that Dr. Czapelewski, the celebrated bacteriologist of Cologne, has confirmed the discovery of bacillus of whooping cough recently made by Dr. Henry Koplik of New York. Dr. Koplik has been experimenting with particular relation to whooping cough for four or five years. A paper on the discovery of the bacillus was read before the British Medical Society in Montreal last summer. The bacillus is an exceedingly small and delicate one. In fact, with the exception of that of influenza, it is the smallest yet discovered. Its size is really about the same as that of influenza. Animal experiments have been tried, but it has been found impossible to reproduce the disease in animals.

Explanation of the Beneficial Effect of Venous Stagnation and inflammation in the struggle of the organism against the invasion of microbes.—Professor H. J. Hamburger announces that it is due to a hitherto unknown factor; the property possessed by CO_2 of causing the red and white corpuscles to swell up, and of liberating a diffusible alkali from the albuminates. It has already been established that serum taken from stagnated venous blood is much more bactericidal than normal blood, and that the lymph is also more bactericidal when stagnated. This he proves is due to the accumulation of CO_2. His tests showed that serum treated with CO_2 was far more bactericidal than normal serum, and that the richer in alkali the more pronounced the effect. Inflammation also causes stagnation, and hence the same effects; an accumulation of CO_2 in the parts involved and increased bactericidal power. He also asserts that the bactericidal properties are more pronounced the larger the number of white corpuscles present, which affords a new explanation of the *pus bonum et laudabile* of the older pathologists. The cells of the lymph glands also evince the same disposition to swell up and liberate alkali under the influence of CO_2.—*Deutsche Med. Woch.*, December 2.

What May be Assumed in Hypothetic Questions.—In the direct examination of an expert witness the facts assumed in a hypothetic question should be only such as are fairly within the scope or range of the testimony. Upon cross-examination, however, the supreme court of Illinois holds, in West Chicago Street Railway Company v. Fishman, November, 1897, any fact which, in the sound discretion of the court, is pertinent to the inquiry, whether testified to by anyone or not, may be assumed in a hypothetic question with the view of testing the skill, learning or accuracy of the expert, or to ascertain the reasonableness or expose the unreasonableness of his opinion. A question, though it goes beyond the scope of the evidence, may be propounded upon cross-examination if its office and purpose are to elicit the reason upon which the expert based an opinion expressed by him in his examination in chief, or to ascertain the extent of his learning and knowledge of the particular subject upon which he assumes to be an expert.

Violent Deaths Among the Employes of Railroads.—On the average about six thousand persons are killed on the railways of this country every year, and upward of thirty thousand injured. Hundreds of employes are killed and thousands injured every year while engaged in coupling or uncoupling freight cars. The law of 1893 demanded that the roads should equip their cars with automatic couplers and air brakes. After all these years much more than half the freight cars remain without even automatic couplers and fewer still are fitted with the brake. Request has been made by certain railroad magnates of the Interstate Commerce Commission, that the time within which the roads must comply with the law be extended for five years. This looks like asking permission to kill or maim a hundred thousand persons in order that derelict roads may wear out their old equipment without the expense of fitting it with the required safety appliances.—*New York Herald.*

Nutrose.—Nutrose is prepared from the casein of milk combined with sodium, and so converted into a soluble condition. It is a highly concentrated albuminoid food, and is represented to be free from the disadvantages of other "meat substitutes." Its advantages over meat derivatives are thus tersely summarized: 1, its high percentage (90 per cent.) of chemically pure albumin; 2, its almost complete lack of odor and taste; 3, its complete solubility in water, milk and other menstrua; 4, its miscibility with ordinary food stuffs; 5, its neutralizing power as against gastric hyperacidity; 6, its easy and almost complete absorbability by the digestive organs; 7, its lack of irritant effect upon the intestinal tract; 8, its practically sterile and undecomposable condition; 9, its inexpensiveness. As to the nutrient value of nutrose, the exact assimilation experiments of Salkowski, Marcuse, Stuve and Bornstein conclusively show that the absorption and utilization of this preparation is very complete and that the albumin of ordinary food may, when necessary, be wholly or partially replaced therewith without producing repugnance, gastro-intestinal irritation or putrefactive diarrhea.—*American Therapist.*

Liverpool Supplies the Antitoxin for Diphtheria free to the Poor.—A circular has been sent to the local practitioners from the medical officer of health of Liverpool intimating that a supply of antitoxin for the treatment of diphtheria has been provided by the Hospitals Committee at each of the five city hospitals, which can be obtained on application to the resident medical officer or matron at one or other of the said hospitals. The object which the hospitals committee has in view is primarily to supply antitoxin for use among the poorer class of patients;

and under any circumstances the committee will be obliged if a return showing the progress of the case be made upon a form which will be supplied at the respective hospitals. This is a step in the right direction and indicates the desire of the municipal authorities to afford every facility for the reduction of infectious diseases and for placing all classes of the community under the most favorable conditions toward recovery.

Prizes Offered by the Academie de Medecine of Paris.—Over $8,000 were distributed in the prizes of 1897, twenty-seven in all. Only seven were awarded entire to one person; the rest were divided among the two to five who came nearest to fulfilling the terms of the award. No communications were received in competition for the Monbinne prize of 1,500 francs (scientific mission). Two prizes were not awarded, the Audiffred and Pourat (tuberculosis and intra-vascular tension). The list of recipients includes only one foreigner Stadfeldt of Copenhagen, (ophthalmology). The prizes offered for 1898 are as follows, omitting three which are only open to French writers. Academie: Infectious myelitis from the clinic and experimental point of view, 1,000 francs, annual. Alvarenga: For best work on any branch of medicine, 800 francs, annual. Aubert: For clinic and experimental research on the question whether there are any human constitutions refractory to tuberculosis, 500 francs. Audiffred: For a sovereign curative or preventive remedy for tuberculosis, discovered in twenty five years from 1896, title to an annuity of 24,000 francs. Baillarger: For the best work on the therapeutics of mental diseases, accompanied by a study of the organization of public and private asylums; 2,000 francs, biennial. Barbier: For a means of curing the diseases now considered incurable, cancer, epilepsy, scrofula, typhus, cholera morbus, etc. This prize can be distributed among those who come nearest to the aim proposed: 200 francs, annual. Bouillard: For the best work and the best curative results attained in mental affections; 1,200 francs, biennial. Bourceret: Circulation of the blood; 1,200 francs, annual. Buisson: For a cure for the diseases now considered incurable; 10,500 francs, triennial. Capuron: Experimental research in obstetrics; 1,400 francs annual. Chevillon: For best work on the treatment of cancerous affections; 1,500 francs, annual. Civrieux: Obsessions in mental pathology: 1,000 francs, annual. Clarens: Hygiene; 400 francs, annual. Daudet: Sarcoma; 1,000 francs, annual. Desportes: Practical medical therapeutics; 1,300 francs, annual. Falret: Somnambulists; 900 francs, biennial. Godard: Internal pathology; 100 francs, annual. Herpin: Abortive treatment of blennorrhagia; 1,200 francs, quadrennial. T. Herpin: Best work on epilepsy and nervous diseases; 3,000 francs, annual. Laborie: For the work that has advanced most notably the science of surgery; 5,000 francs, annual. Laennec: Infantile capillary bronchitis; 500 francs. Larrey: Medical statistics; 500 francs, annual. Louis: Serotherapeutics, 4,000 francs, triennial. Mège; Hay-fever, 800 francs, triennial. Meyrot: Diseases of the ear; 2,600 francs, annual. Monbinne: Scientific missions, medical, surgical or veterinary; 3,000 francs. Nativelle: Extraction of the active principle of some medicamentous substance, hitherto unisolated; 300 francs, annual. Nivet: Sanitation of barracks, hospitals, schools, crèches, asylums, etc.; 3,000 francs. Orfila: Cocculus indicus and picrotoxina, therapeutics and toxicology; 2,000 francs, biennial. Portal: Lesions of the nerve centers and kidneys caused by the toxins of tetanus and diphtheria; 600 francs, annual. Pourat: Circulation of blood in the lungs; 1,000 francs, annual. Saint Lager: For the production of the thyroid tumor in animals by administering substances taken from the waters or soil of localities where goiter is endemic; 1,500 francs. Saintour. For the best work on any branch of medicine; 4,400 francs, biennial. Stanski: Awarded to the person who has demonstrated the existence or non-existence of miasmatic contagion, by infection or contagion from a distance. If no communications are received conforming to these requirements, the prize will be awarded for the best elucidation of any question relating to contagion in the contagious, inoculable affections; 1,800 francs, biennial. Tremblay: For the best work on the affections of the urinary passages, catarrh of the bladder, prostatic lesions, etc.; 7,200 francs. quinquennial. Vernois: Hygiene; 700 francs, annual. The prizes offered for 1899, include, besides the unchanging annuals already mentioned—Academie: Physiology and pathology of the thyroid gland; 1,000 francs, annual. Amussat: For the best work of research, both anatomic and experimental, which has realized the most important progress in surgical therapeutics; 1,000 francs, triennial. Argenteuil: For the most important improvement in the curative treatment of strictures of the urethra, or for the best work on any affection of the urinary passages; 6,800 francs, sexennial. Civrieux: Nervousness; 800 francs, annual. Daudet: Lymphadenoma; 1,000 francs, annual. Lefèvre: Melancholia; 1,800 francs, triennial. Portal: Experimental study of the inoculation and contagion of cancer; 600 francs, annual. Pourat: Experimental research to elucidate the question of the immediate and remote destination of the albuminoid aliments; 700 francs, annual. Ricord: For the best work that has appeared in the two years on the venereal diseases; 600 francs, biennial. The prizes for 1900 include: Académie: Medication by organic juices; 1,000 francs, annual. Capuron: Hydromineral treatment of albuminuria; 1,000 francs, annual. Civrieux: Delirium in general paralysis; 800 francs, annual. Daudet: Results of surgical treatment of cancer of the ovaries; 1,000 francs, annual. Falret: Clinic forms of neurasthenia and their treatment; 700 francs, biennial. Itard: For the best book on practical medicine or applied therapeutics, published at least two years; 2,400 francs, triennial. Perron: For the author of the work that has best promoted the progress of medicine; 3,800 francs, quinquennial. Pourat: Intravascular sanguine tension; 700 francs, annual. Articles must all be received by the end of February, and be written in French or Latin, with the name in a sealed envelope unless in pamphlet or book form. The manuscripts, etc., are not returned to the authors.

Hospitals.

THE new Lakéside Hospital, Cleveland, Ohio, was dedicated January 12.——The Presbyterian Hospital, Chicago, receives $8,801 from a benefit concert given in the Auditorium January 17.

YALE MEDICAL SCHOOL is the recipient of $1,000, the gift of Mrs. D. C. Leavenworth of New Haven, Conn., as a memorial to the late Dr. D. C. Leavenworth, a graduate of the school in 1865.

Societies.

THE HARLEM MEDICAL ASSOCIATION held its annual dinner at the local Casino, January 15. Nearly sixty were present besides Surgeon-General Sternberg, who spoke highly of the AMERICAN MEDICAL ASSOCIATION and of the JOURNAL. He advocated a greater harmony among the profession at large, of which he was pleased to report many cheerful signs. Dr. Arthur M. Jacobus represented the Medical Society of the State of New York. He referred in response to the toast to many grivances of the profession which legislation might remedy, such as Health Board encroachments upon time-honored privileges and occasional assumptions of superior intelligence. He spoke at length upon the evils of unlicensed and ignorant midwifery. Dr. Joseph E. Janvrin, as President of the New York County Medical Association referred to the character of its work and the value of its contributions to the general stock of medical progress. Dr. Thomas H. Manley, in the course of his remarks upon the entertaining Association, humorously described his early experiences of the suburb and could not but be astounded at its growth. He also hoped that trivial differences might be adjusted in the profession and that harmony would be the rule. Being an optimist he could not be otherwise than cheerful. Owing to the absence of two advertised speakers, since reported as "unavoidably detained," Dr. John Shrady was forced to make an unprepared speech, which consumed several minutes. After this the meeting adjourned with cheers for Dr. Sternberg, who had sacrificed his convenience for this special occasion.

Washington.

REPORT OF THE HEALTH OFFICER.—The report of Health Officer Woodward for the week ended January 15 shows the total number of deaths to have been 96, of which number 57 were white and 39 colored. The principal causes of death: nervous disease 18, respiratory diseases 35, heart disease 6. There are at present 62 cases of diphtheria and 57 cases of scarlet fever under treatment.

COMMITTEE ON PUBLIC HEALTH.—The Committee on Public Health of the Washington Board of Trade, at its recent meeting decided to recommend to Congress the reclamation of the Anacostia Flats. The insanitary condition of these flats is largely responsible for the paludal fevers which prevail in Washington throughout the year and makes the city world-renowned for ill-health. The medical members of the committee are Surgeon-General George M. Sternberg, W. W. Johnston, G. L. Magruder, H. L. E. Johnson, L. W. Ritchie, W. P. C. Hazen, J. B. G. Custis, John E. Jones and George Henderson. Dr. S. C. Busey, who was chairman of the committee for several years, recently tendered his resignation.

MEDICAL AND SURGICAL SOCIETY.—At the meeting of the Society recently held Dr. Elmer Sotheron presented a specimen of ruptured tubal abscess with the history of the case. The subject was discussed by Drs. Joseph Taber Johnson and W. P. Carr. He also read a paper entitled "Hour-glass Contraction of the Uterus," which was discussed by Drs. Moran, Carr, Bowen, Morgan and J. T. Johnson. Dr. Stone read a paper entitled "The Mind Cure," which was discussed by Drs. Chamberlain, Capeheart, French, Kober and W. P. Carr.

MEDICAL SOCIETY.—At the meeting of the Medical Society on January 19 Dr. Stiles read a very instructive paper entitled "The Inspection of Meats for Animal Parasites," and Dr. Hasbrouck reported a case of hypertrophic pulmonary osteo-arthropathy with photographs and specimens.

Louisville.

LEGISLATION.—Public health is being looked after by the present legislature, as several bills have been introduced in the past week which are looking to that end. Bill No. 93, introduced by Mr. Desha of Harrison County, has as its object the keeping of itinerant dentists out of the State by requiring that dentists shall have a license from the Board of Examiners, appointed by the Kentucky State Dental Association. This bill was referred to the Committee on Public Health. Bill No. 113 was introduced by Mr. Chinn of Mercer County. It authorizes the appointment of a pure food commissioner, who shall see that all mixed and adulterated food and liquors, of every character and form, are labeled, showing the ingredients. It prohibits the manufacture of both pure and adulterated goods by the same person. The leading members say that the bill can never pass, as it conflicts with too many interests and would drive many grocers out of business. It will probably not get out of the Committee on Judiciary, to which it was referred. Bill No. 39, introduced in the Senate, is similar to the one just referred to, though not so comprehensive or far-reaching. This bill was introduced by Mr. Smith of Henry County. It requires that all handlers of mixed flour shall label or brand each package of flour with the ingredients contained therein. Bill No. 40, introduced by Senator Edmonson, requires factories to print on each label the year the fruit was put up and, where it is imported in bulk, the importer must stamp on each package the date of its arrival in the State. One bill has been reported favorably by the committee which raises the age of consent of females from 13 to 16 years, and the Committee on Public Health reported favorably on the bill to prevent the sale of meat of animals dying otherwise than by slaughter. It is believed both will pass.

ASYLUM APPOINTMENTS.—The Senate Committee on Charitable Institutions refused to confirm the appointment of the colored physician, Dr. B. F. Porter, who has been appointed by Governor Bradley as third assistant physician at Lakeland Asylum for the Insane. The Senate however refused to concur in the committee's recommendation and confirmed Dr. Porter's appointment, as it was shown that he would have charge of the colored inmates only. Dr. Louise Bergmann of Louisville, who has been serving as a resident physician at the Woman's Hospital at Philadelphia, has been notified by telegram to proceed at once to Lexington to assume her duties as third assistant physician to which position she has just been appointed by the Governor. This position was made vacant by the promotion of Dr. John L. Long, to be Superintendent of the Feeble Minded Institute, and the advancement of the assistants in consequence of his resignation as first assistant. There is some talk that the appointment of Dr. E. M. Wiley as Superintendent of the Lexington Insane Asylum, which was made during the interim of the legislature, would fail of confirmation because the Doctor is a "sound money democrat," and the legislature is largely "free silver." It is to be hoped that this will not be done as Dr. Wiley has made a most excellent superintendent.

PRISON.—The Sinking Fund Commissioners have decided to remove the male guards from the female wards of the Frankfort penitentiary, and to appoint in their place two women for that purpose.

MILK.—Health Officer Allen has introduced the policy of compelling all dairymen, whether residents of the city or county, or outside of the State, to take out a license as compelled by law, as it has been ascertained that the present law was sufficiently comprehensive to include out of town dealers who send milk to the city. It has already been the cause of an improvement in the character of milk supplied. In the Senate, Mr. Nazier of Shelby County, introduced Bill No. 45, relating to the sale of dairy products, and imitations thereof. It provides for the appointment of a milk inspector in every county, and for the stamping on all cans, boxes or packages the fact that any dairy product is adulterated.

Detroit.

AT A REGULAR MEETING of the Wayne County Medical Society December 23, Dr. Fritz Maass read a paper entitled "Toxin and Serum Treatment of Inoperable Tumors." After giving a history of the use and preparation of the serum as devised by Coley, the author presented statistics of cases treated by this method by Coley, Emmerich, Scholl and others, showing somewhat unsatisfactory results except in a small percentage of cases. The Doctor then gave a full history of a case of melanotic sarcoma occurring in his own practice treated by Coley's method. The treatment proved entirely unsuccessful. Not only that, but the Doctor considered that the treatment favored the development of metastases.

AT A MEETING of the Detroit Medical and Library Association January 10, Dr. C. W. Hitchcock read a paper entitled "Hemorrhagic Pancreatitis; a Case Having Unusual Medico-Legal Relations." The author described the disease as being one of insidious onset, but one which presents a very striking clinical picture, with its sudden, sharp and severe pain, the vomiting, collapse and evidence of profound shock. Its course has been as short as one-half hour (that is, after first known symptoms) and as long as several days. The etiology is obscure. Alcoholic excesses, previous attacks of gastroduodenitis and possibly injury are thought to be factors. Antemortem diagnosis is infrequent, though a few cases are reported. The diagnosis frequently falls on intestinal perforation, appendicitis, irritant poison or acute intestinal obstruction. Medicolegal phases are rare. Poison was suspected in one case. References to injury as a cause are few and not satisfactory. Fitz reports a case in which injury is assigned as probable cause. In the case here reported the patient told none of his physicians of any injury and denied it to one, but after his death a fellow employe alleged a fall and claim was made for insurance, the patient having held an accident policy. Autopsy established clearly the existence of hemorrhagic pancreatitis with all the usual pathologic evidences. Yet in the face of all this at least two physicians leaned to the theory of death from hemorrhage from rupture, although no such rupture could be found. The man died fifty-four hours after the first symptoms, presenting the typic clinical picture of hemorrhagic pancreatitis. Though the history of injury was doubtful and all the clinical evidence was against its being the cause of death, yet, owing to its allegation by the only eye-witness, the differing opinion of physicians and the additional doubt as to whether or not injury might stand in a causal relation to hemorrhagic pancreatitis, a compromise of the case was advised and secured.

Harper Hospital Medical Board.—At a meeting of the Board of Trustees of Harper Hospital held on Tuesday evening, January 11, the following staff was elected for the year 1898: J. H. Carstens, M.D., chief of staff; consulting surgeons, Theo. A. McGraw, E. T. Tappey; attending surgeons, Daniel Laferte, H. O. Walker, J. K. Gailey; junior attending surgeons, Angus McLean, P. M. Hickey, Benjamin P. Brodie, F. B. Tibbals; consulting physicians, Charles Douglass, J. J. Mulheron; attending physicians, George Duffield, W. R. Chittick, C. G. Jennings, F. W. Mann; Junior attending physicians, F. W. Robbins, B. R. Shurly; consulting oculists, L. Connor, George E. Frothingham; attending oculists, George E. Frothingham, Jr., Don M. Campbell; consulting neurologist, David Inglis; attending neurologists, J. E. Emerson, C. W. Hitchcock; dermatologist, A. E. Carrier; laryngologist, E. L. Shurly; consulting gynecologist, Helen F. Warner; attending gynecologists, H. W. Longyear, W. P. Manton, Harriet A. Gerry, J. H. Carstens; microscopist, E. H. Sargent; assistant microscopist, Thaddeus Walker; pathologist and curator, E. H. Troy.

Denver.

Bureau of Health.—The water-supply of the city has occupied the attention of Health Commissioner Dr. Wm. P. Mun for the last three years. The lingering cases of sporadic typhoid fever stand out in bold relief when examined in the light of the general low mortality, 10.48 per 1,000 per annum, and according to the investigation of the department, the water supply is one, if not the sole, source of the infection. The annual reports for 1895 and 1896 contain graphic descriptions of the contaminated sources whence the water is supplied and attempts made by the commissioner to induce the Denver Union Water Company to act on the recommendations made by the bureau. But the company turned a deaf ear and went on disseminating filth and disease. Happily for the city the mayor, the members of the city council and the citizens of Denver are in sympathy with their energetic and fearless health commissioner. Suit was begun by the city against the company and the stockholders begin to see that the long suffering public is alive to the interests and mean business. The company made haste to introduce some of the suggestions made by the health department in order to blind the public, but the commissioner kept his eyes open and induced the members of the council to go in a body and see everything there is to be seen. The company has requested the privilege of sending their engineer and secretary along with the expedition, which request was granted. After a thorough inspection of the sources of the water supply, their filthy surroundings and inadequate filtration, there remained no more doubt in the minds of the city fathers, and to a certain extent in the minds of the officials of the company as to the correctness of the statement of the last annual report, which reads: 1. That the Mississippi Street horizontal wells and the Harrimon Ditch were subject to sewage pollution of the most serious nature. 2. That the mixed water supplied to the city furnished evidence of that pollution in the presence of bacteria to the number of as high as 5,000 c.c. during the summer. 3. That decreased use of the water was coincident with decreased bacterial contamination of the mixed supply. 4. That the typhoid fever prevalence followed the period of maximum use of the polluted water and the diminished use of polluted water seems so far to have been followed by diminished typhoid prevalence.

The Annual Meeting of the Denver and Arapahoe Medical Society was held December 11. The event of the evening was a paper read by Dr. Sewall on the "Reduplication of the Heart Sounds and Its Clinical Signification." When he announced that the reduplication of the second sound is a perfectly normal phenomenon, and can be discerned in every man, sound or sick, the members manifested a great deal of surprise. Dr. Sewall spoke of the causes of heart sounds and the elements which produce them. Each side has three elements and therefore six separate sounds could be heard. The reduplications are: Prolongation, splitting and doubling. The reduplication may be real or simulated. The reduplication of the second sound is heard plainest at the base of the heart, and is most marked at the end of respiration. The explanation of the cause of the normal phenomenon of the reproduction is a very ingenious one. It depends upon the non-synchronous closure of the sigmoid due to unequal arterial pressure, and as the difference in pressure is greatest at the end of inspiration the reduplication is in consequence most marked at that time. The lessening of reduplication of the second sound, the author avers, is rather a pathologic symptom. Dr. J. N. Hall, in discussing the paper, called attention to the fact that in mitral stenosis the reduplication of the second sound is pathognomonic, notwithstanding Strümpell and others to the contrary. Dr. H. B. Whitney said: "If any one would have told me a week ago that the second sound is as a rule reduplicated, and that I have been during these long years of practice like the wicked 'who hath ears and heareth not,' I would have scorned such an assumption. But thanks to Dr. Sewall, who has given me the opportunity to examine twenty patients under his tutelage, I can say that the reduplication of the second sound was a perfect revelation to me." He has heard the reduplication in fifteen cases out of the twenty. It requires, however, a highly trained ear. The election of officers resulted as follows: E. P. Hershey, president; H. B. Whitney, vice-president; J. M. Blaine, financial secretary; J. E. Rothwell, treasurer, and George Tyler, secretary. From the exhaustive report of the retiring secretary, Dr. Spivak, we glean that fourteen meetings were held during 1897; the average attendance was thirty-six; twenty-seven papers were read and eleven cases reported. The Society has 150 members. The secretary suggested that a historic sketch of the Society, which is now in its twenty-seventh year of its existence, as well as the annual Transactions, be published. The suggestions were referred to the incoming Board of Censors, which is composed of Drs. Fleming, Eskridge, Hopkins, McLauthin and Van Zant.

The Denver Clinical Society.—Notwithstanding the fact that our sister-practitioners avail themselves of all the privileges which the existing medical societies afford, and not only do they grace the meetings with their presence, but also take active part in presenting and discussing papers in a manner by no means less dignified and scholarly than their brother practitioners, yet they have an organization of their own called by the above name. At the suggestion of Dr. Mary B. Bates, the women physicians have organized the society, which is in its third year of existence, and has for its object "the mutual improvement arising from informal discussion of interesting cases and new methods of treatment, as well as to foster greater sociability, closer acquaintance and sympathy among the members." The Society has twenty members and meetings are held bi-monthly. The present officers are: M. Jean Gale, president; Una Roberts, first vice-president; Catherine Hayden, second vice-president, and Josephine L. Peavey, secretary and treasurer. At the last meeting, held January 4, Dr. Lavney read a paper on "Uremia," with reports of a case of uremic convulsions, which necessitated emptying of the uterus. The patient recovered. The paper was discussed by Drs. Gale, Yont and Roberts.

Philadelphia.

Epidemic of Typhoid Fever.—The city authorities have recently had the most convincing kind of an object lesson afforded them regarding the direct relation of cause and effect existing between a sewage-polluted water-supply and the prevalence of typhoid fever in a thickly settled community. Some years ago their attention having been directed to the greater proportionate number of deaths from this disease in Philadelphia than in other large cities, and the cause being indicated and recognized as sewage pollution of the water-supply, provision was made to prevent such contamination by the construction of a large intercepting sewer, which runs nearly parallel with the Schuylkill River and empties its contents below the city water works. Since its completion there has been observed a decided diminution in the number of cases of typhoid fever until recently. On November 16 last some workmen in flushing this great sewer turned on too great a head of water and the sewage backed up and before it was stopped overflowed for a few hours only into the Schuylkill. The polluted water was pumped principally into the Queen Lane Reservoir, supplying eight wards, which are considered as being among the healthiest wards of the city under ordinary circumstances. The first results were shown in the sudden increase of typhoid in these wards. Later there was a decided rise in the number of cases in other portions of the city. The reports of the health office as published weekly show that for the week ending November 22 there were only 34 cases, November 29, 54; December 6, 117; December 13, 125; December 20, 110; December 27, 107; January 3, 97; January 10, 165; January 17, 201; January 24, 212. The health authorities of the city have done their duty promptly. Dr. Abbott, head of the bacteriologic department, has prepared a report containing a striking array of figures and water analyses, accompanied by a chart or diagram of the affected districts. The County Medical Society has adopted resolutions condemning the water-supply and calling for the construction of a filtering plant as the only remedy. The suggestion was made by a member of Councils to ask the assistance of the United States Marine-Hospital Service, which, however, met with little favor. In view of the fact that by a popular vote on a new loan bill, Councils were authorized to spend more than a million of dollars in the specific purpose of improvement of the water supply, it would seem that the situation has been well summed up by the mayor of the city, Mr. Warwick, who said in an interview: "There is only one thing that can be done now and that is to pass the loan bill. The betterment of the water-supply is the crying need of the people and this administration will attend to it just as soon as the money is available to accomplish the purpose." Dr. Benjamin Lee, Secretary of the State Board of Health, improves the occasion to point out the fact that for the last ten years the board has been endeavoring to secure the passage of a law to protect the Schuylkill as well as other rivers in Pennsylvania which supply cities with water from being the repositories of drainage, but without success. He ascribes the present outbreak directly to the pumping of polluted water into the Queen Lane Reservoir, and believes that it could have been averted by a proper system of filtration, such as had been advised by the City and State Boards of Health years ago. There can be no question but that the present outbreak has occurred at a most opportune time to strengthen the arguments of our health authorities and to enlist public opinion in favor of a much needed public improvement which Councils will probably be compelled to carry out.

PHYSICIANS' BENEFIT ORGANIZATION.—The Mutual Aid Association of the Philadelphia County Medical Association was the subject of the meeting of the County Society January 26. Addresses were made by Dr. Edward Jackson, president of the Society; Dr. Chas. Herman Thomas, president of the Mutual Aid Association, and John B. Roberts, ex-president. Dr. A. F. Currier of New York read a communication entitled "The Fifty-five Years of the New York Society for the Relief of Widows and Orphans of Medical Men." Dr. Chas. H. Leale, president of the New York Society, was also present and addressed the meeting. The Rev. Dr. Krauskopf, by invitation, spoke on "The Necessities of the Widow and Orphan," and the Rev. Chas. Wood spoke on the subject of "Charity." The meeting was largely attended and a number of visitors interested in philanthropic work were present. A reception and collation at the University Club followed the exercises, Dr. M. O'Hara was chairman of the committee having the entertainment in charge.

THE ANNUAL MEETING of the Faculty of the Philadelphia Polyclinic and College for Graduates in Medicine, was held January 17. The report of the Secretary showed that the number of pupil-physicians in attendance was larger than ever before in the history of the College. The most popular ticket was that for the general course. Of the special tickets taken, those in ophthalmology exceeded those of any other branch. The report of the Treasurer was equally satisfactory. In addition to the payment of all fixed charges of maintenance, the Faculty had contributed $1,800 to the sinking fund. This fund was established for the purpose of gradually wiping out the mortgages on the buildings, freeing the institution from debt and putting it on a sound financial basis that shall be independent of the number of students and of other circumstances. The officers that have served for 1897 were re-elected: Howard F. Hansell, president; Lewis Steinbach, vice-president; Max Stern, Secretary.

AT THE JANUARY MEETING of the Ophthalmic Section of the College of Physicians, held on the 19th inst., after transaction of the scientific business, the election of officers for 1898 resulted in the choice of Geo. C. Harlan for chairman and Howard F. Hansell for clerk of the Section for the ensuing year.

CHANGE OF ADDRESS.

Bausch & Lomb, from Masonic Temple to Stewart Building, Chicago.

Chancellor, C. G., from 613 Pine to Oriel Building, St. Louis, Mo.; Cunningham, S., from Taylor to Dallas, Texas; Cresswell, G. W., from 8 De Kalb St. to 36 Spruce St., Chicago, Ill.

Drake, G. W., from Nashville, Tenn. to Hollins, Va.

Houghton, E. F., from Rochester to Tilton, N. H.; Hawley, E. A., from 477 E. 45th to 663 Congress St., Chicago, Ill.

McLaughlin, from Austin to "Tower House" Galveston, Texas; McBride, M. A., from Yorktown to Sidney, Texas; Marcussen, W. B., from Harrison and Center Ave to 671 W. Madison St., Chicago, Ill.

Trumbower, M. R., from Denver, Colo. to Monett, Mo.

Uhler, J. R., from 661 W. Fayette St. to 1531 McCulloch, Baltimore, Md.

Whiting, E. D., from Chicago, Ill. to Alma Sanitarium, Alma, Mich.

LETTERS RECEIVED.

Ashby, W. W., (2) Ouray, Colo.; Arnold, Philip, (2) Elizabeth, Ill.; Anderson, Winslow, San Francisco, Cal.; Applegate, J. C., Bridgeton, N. J.; Asepta Chemical Co., New York, N. Y.; Atkinson, W. B., Philadelphia, Pa.

Bovinine Co., The, New York, N.Y.; Brown, F. F., Advertising Agency, New York, N. Y.; Busey, S. C., Washington, D. C.; Bleazby, L. F., Detroit, Mich.; Barringer, G. R., Yorktown, Ill.; Black, H. C., Waco, Texas; Brown, J. M., New York, N. Y.

Chas. Roome Parmele Co., New York, N. Y.; Class, W. J., Chicago, Ill; Cokenower, J. W., Des Moines, Iowa; Cronica Medica Mexicana, Mexico City, Mexico; Cutter, F. H., Cedar Falls, Iowa; Case, I. S., Columbus, Ohio; Colorado Sanitarium, Boulder, Colo.; Canton Surgical and Dental Chair Co., Canton, Ohio.

Dial, W. H., Lanrens, S. C.; Dunlap, J. L., Columbus, Ohio.

Elliott, H. G., New York, N. Y.; Edson, Carroll E., Denver, Colo.; Ewing, W. G., Nashville, Tenn.

Frissell, Seraph, Springfield, Mass.; Fougera, E. & Co., New York, N. Y.; Fulton, John S., Baltimore, Md.; Fisk, George V., Burlington, Vt.

Golden, I. J. K., Chicago, Ill.; Gibb, Joseph S., (2) Philadelphia, Pa.; Gaston, J. McFadden, Atlanta, Ga.; Goss, F. W., Roxbury, Mass.; Greene, J. H., Dubuque, Iowa.

Hummel, A. L., Advertising Agency, New York, N. Y.; Hall, C. Lester, Kansas City, Mo.; Hektoen, L., Chicago, Ill.; Harris, M. L., Chicago, Ill.; Hannah, R. B., Felicity, Ohio; Herrick, A. B., Lisbon, N. D.; Haldenstein, I., New York, N. Y.; Howle, W. P., Oran, Mo.; Hogan, G. A., Birmingham, Ala. Hay, E. C., Hot Springs, Ark.

Jones, C. D., Malden, Mass.; Jackman, W. S., Chicago, Ill.

King, F. R., Anita, Iowa; Kimball, A. D, National Military Home, Ind.; Kiernan, Jas. G., Chicago, Ill.; King-Jones Co., Limited The, Toronto, Canada.

Marks, A. A., New York, N. Y.; McDill, J. R., Milwaukee, Wis.; Milliken, John T. & Co., St. Louis, Mo.; Mitchell, Henry, Trenton, N. J.; Mitchell, Alfred, Brunswick, Me.; MacCoy, George T., Columbus, Ind.; Martin, Thos. Chas., Cleveland, Ohio; Middleton, W. D., Davenport, Iowa; Malt Diastase Co., New York, N. Y.

Newberry Library, The, (2) Chicago, Ill.

Oakland Chemical Co, New York, N. Y.

Pratt, W. E., Buckingham, Va.; Pleak, S. Marton, Breese, Ill.; Perdue, W. R., Unionville, Pa.; Potter, H. N., Burlington, Vt.; Paul Paquin Laboratories, St Louis, Mo.; Patch, Wm., (2) Sibley, Ill.

Reasoner, R. W., Morrisonville, Ill.; Rutledge, S. W., Grand Forks, N. D.; Rawlins, C. M., Cleveland, Ohio; Rockwell, A. D., New York, N. Y.; Rogers, H. S., Red Oak Iowa.

Shoemaker, J. V., Philadelphia, Pa.; Savage, G. C., Nashville, Tenn.; Strong, T. D., Westfield, N. Y.; Scott & Browne, New York, N. Y.; Scheppegrell, W., New Orleans, La.; Stuart, J. C., Minneapolis, Minn; Sweetser, H. B., Minneapolis, Minn. Shotwell, A. N., Mt. Clemens, Mich.

Tedrow, J. B., Williams, Iowa; Treat, E. B. & Co., New York, N. Y.

United States and Canada Mercantile Agency, (2) Chicago, Ill.; Union Publicity Co., Brooklyn N. Y.

Welch, Wm. H., Baltimore, Md.; Welch Grape-Juice Co., The, Watkins, N. Y.; Woodworth, R. G., Pueblo, Colo.; Wingate, U. O. B., Milwaukee, Wis.; Western Pennsylvania Medical College, (2) Pittsburg.

Zimmermann, A., Step, Ala.

THE PUBLIC SERVICES.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from January 8 to 14, 1898.

Capt. Charles F. Mason, Asst. Surgeon (U. S. Military Academy, West Point, N. Y.), is granted leave of absence for two months, with permission to go beyond sea, to take effect April 1, 1898.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending January 22, 1898.

Surgeon A. G. Cabell, ordered home and granted three months' sick leave.

P. A. Surgeon A. W. Dunbar, order of January 12 modified; detached from the "Nashville" and ordered to the "San Francisco," by steamer of January 22.

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ORIGINAL ARTICLES.

OBJECTIONS TO THE ANTIVIVISECTION BILL NOW BEFORE THE SENATE OF THE UNITED STATES.

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The following statement has been prepared by the writer in order to meet the requests of several Senators of the United States and of physicians for objections to Senate bill 1063, which has been reported unanimously by the Committee on the District of Columbia. It is believed that many have been misled by efforts of advocates of the proposed legislation to make it appear that the bill is intended only to check alleged abuses of animal experimentation and not to interfere with its proper uses. A main purpose of this statement is to show the error of this assumption.[1] Much of the same ground has already been covered by others in various protests and publications.

The provisions of Senate Bill 1063 are so complicated and in several instances doubtful in their interpretation, and the objections to the bill are so numerous and their full presentation would require so much space, that only some of the principal arguments against it can be considered within the compass of this succinct statement.

1. The bill is entitled "A Bill for the further prevention of cruelty to animals in the District of Columbia." This title is misleading, as it does not indicate that the bill is intended solely for the restriction and regulation of experiments upon animals. The recommendation of the Commissioners of the District of Columbia in their report upon a bill of the same title and of similar contents in the 54th Congress (S. 1552) that the title be changed to read "A Bill to regulate vivisection in the District of Columbia" was not adopted. It may well be questioned whether some who have signed petitions in favor of the bill have not been misled by the title as to the real contents of the bill.

2. The authorship of this bill is claimed by the antivivisection committee of the Washington Humane Society (annual report, 1895, p. 24). The attitude of this society toward experimentation upon animals is apparent in the report of its president for the year 1894, where he said: "The subject of vivisection (experiments upon animals) has been frequently before your executive committee during the past year, and but one sentiment has been expressed, viz., that of utter abhorrence and condemnation of the inhuman practice which, according to the oft expressed opinion of the best physicians and surgeons, is of no practical value to science or medicine." It should be borne in mind that this bill emanates wholly from those hostile to animal experimentation and who, as appears from the foregoing quotation, do not hesitate to misstate the opinion of the great body of the medical profession as to the value of animal experiments. No one familiar with the needs of scientific and practical medicine and of biological science and possessing skilled knowledge upon the subjects which the bill proposes to regulate has been consulted or had any hand in the drafting of the bill.

3. Medical and scientific men have never had adequate opportunity to present the arguments against this bill before the Committee on the District of Columbia, which has reported favorably upon it. At the hearing of a similar bill before this Committee on April 17, 1896, Surgeon-General Sternberg said, "We did not know of this hearing until today, and were compelled to come here without any previous preparation." Surely a bill which is of far more than local interest, as appears from the numerous communications regarding it from all parts of the country, and which in its direct and remote bearings, in the opinion of enlightened physicians and scientists, vitally concerns the future progress of medicine and biological science in this country, never should have been reported by the Committee without thorough investigation as to its necessity and its effects and without full opportunity, granted not only to physicians of the District of Columbia but to others, to prepare and submit arguments against it. An hour's time granted to a few hastily summoned physicians and scientific men of the District, who came without preparation, did not afford the requisite opportunity to present adequately the objections to the bill.

4. Any one who is at all familiar with the writings and the propaganda of the antivivisectionists knows that their ultimate aim is to abolish animal experimentation altogether. They demand only such measure of restrictive legislation in the present bill as they think they may be able to secure at the present time. Concession to these demands will not check their agitation of the subject and their efforts to secure more stringent laws, as has been abundantly

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[1] As a matter of fact no abuse of vivisection such as would justify any restrictive law whatever has been demonstrated in this country. The experience in England has shown the folly of the belief of some men of science and physicians that any compromise in this matter with antivivisectionists will check in the least their agitation of the subject. Upon this point I will quote, by permission, a few sentences from a private letter written by Michael Foster, who is recognized in this country as well as in Great Britain as the leader in his department of medical science. The letter was written to a prominent physiologist in this country: "I have always said and always shall say that the necessity of a restrictive law has never been shown. The English Commission failed to demonstrate any abuse such as could justify the measures adopted; and from what I know of America and Americans I am confident no such laws are needed with you. Indeed, my objections to the Act as a politician are quite as strong as my objections as a physiologist; the Act is stamped with that mark of bad statesmanship, *meddlesomeness*, ... If the time were to come over again, I should fight tooth and nail against any act at all, on the ground that all such *legislative restrictions are unnecessary*, that instances of cruelty, that is of heedless causing of pain on the part of physiologists are, to say the least, rare, and that public opinion aided by the ordinary law is quite sufficient to cope with such cases. (I of course assume that vivisection is absolutely necessary for the progress of physiology.) And, much as I hate public agitation, I should throw myself into agitating against such measures, sacrificing my little portion of present science for the sake of science to come. My advice to you is, accept no compromise whatever, refuse to admit for a moment the need of such a law, and fight against it everywhere, in the newspapers and on the platform, and if the situation demands it, even imitate your opponents and refuse a political vote to a candidate who will not pledge himself to vote against it. I do not think I can say anything stronger than this last. To repeal a law is a very different thing from opposing the making of one."

demonstrated in England, where some medical and scientific men unwisely thought that by yielding to relatively moderative demands for legislation, further agitation of the subject would end. On the contrary, bills for the total abolition of experiments upon animals have been introduced into the British parliament since the passage of a bill similar to Senate Bill 1063.

5. Although it is contended by advocates of the bill that it will not interfere with the proper uses of animal experimentation, it is to be noted that the remarks of these advocates at the hearing before the Committee and the favorable report of Senator Gallinger are occupied largely with the presentation of the stock arguments of antivivisectionists against the value and the justification of experimentation upon animals. The most important of these arguments are the following: *a*. That medical and scientific men are divided in opinion upon this subject; *b*, that experiments upon animals have yielded results of little or no value to medicine or science; *c*, that such experiments are conducted with wanton cruelty and are brutalizing to those who witness or practice them. These arguments have been refuted many times. It would require a voluminous treatise to present the evidence relating to them adequately. It must suffice to mention only a few points.

a. It is untrue that there is any material division of opinion among well informed medical or scientific men as to the necessity and value of animal experiments. The names of a very few more or less prominent physicians, in no instance themselves scientific experimenters, are constantly cited, in some cases incorrectly or incompletely, by antivivisectionists in support of their position. Lists of other physicians collected by antivivisectionists as opponents of animal experimentation will not in general bear scrutiny as to the professional standing or scientific attainments of the majority of those whose names are given. The incorrectness of the statement of antivivisectionists here challenged must be apparent from the fact that whereas not a single medical or scientific society is known to have favored this bill, over a hundred such societies, which assuredly represent the great body of physicians and scientists of this country have protested against its passage. These societies represent the rank and file of the medical profession and not exclusively "ultra-scientists," as has been claimed. It is therefore unhesitatingly asserted that the medical profession and scientists, so far as their opinion receives authoritative utterance, are overwhelmingly opposed to this bill.

b. The constantly reiterated statement of antivivisectionists that animal experimentation has been of little or no value to medicine can be the result only of ignorance or of wilful misrepresentation. It would be surprising, indeed, if the experimental method, which is essential to every other science and has been the great instrument of modern scientific progress, should have no value for medical science. Surely this is a matter concerning which the judgment of the great body of enlightened physicians should be decisive. The progress of medicine from the time of the discovery of the circulation of the blood, which was based upon the results of animal experimentation, up to the present time, has rested in very large measure upon discoveries which could have been made only by experiments upon animals. It must suffice here to cite only a few illustrations of the practical value of animal experimentation, such as the establishment of the germ doctrine of disease, the introduction of antiseptic surgery, the prevention of childbed fever, the antitoxin treatment of diphtheria and other diseases, the prevention of rabies by Pasteur's method of inoculation, the successful treatment of myxedema and cretinism by thyroid extracts. Countless thousands of human lives have been saved and will continue to be saved by methods of prevention and treatment of disease, which are derived from the results of animal experimentation. Recent years have been particularly fruitful in discoveries of the highest importance resulting from animal experimentation. Never was there so little justification to hamper in any way the work of those engaged in searching by experiment for means of preventing and curing disease.

c. The claim of antivivisectionists that scientific experimentation on animals brutalizes those who witness and practice it, is an insult, without shadow of foundation, to a class of scientific workers unselfishly devoted to the investigation of problems of the highest importance to the welfare of mankind.

There is no part of the campaign of the antivivisectionists conducted with such gross misrepresentation of the facts as that intended to make the public believe that scientific experiments upon animals are conducted cruelly, that is, with the infliction of needless pain. A large part of antivivisection literature consists of leaflets and broadsides distributed wholesale among the public, containing pictures of animals and descriptions of experiments, which are in general so erroneous or garbled or unintelligible to most of those who read them, that they convey utterly false impressions. It is repugnant to the spirit of medicine and of science to resort to similar methods in order to counteract the deplorable effects of these emotional and misleading appeals of antivivisectionists to the general public. The charge of any considerable abuse of the practice of animal experimentation on the ground of cruelty, especially in this country, has been abundantly refuted by articles in journals and other publications, which unfortunately rarely come to the notice of the great majority of those who receive the gruesome circulars of antivivisectionists. Whenever the conditions of the experiment permit, and this is in the great majority of painful vivisectional experiments, all trained experimenters place the animal during the operation completely under the influence of anesthetics. There is no evidence that there exists today in any properly conducted laboratory in this country any abuse of vivisection on this score.

6. The advocates of this bill have not been able to point to a single authenticated instance of the abuse of animal experimentation in the District of Columbia. The same inability to specify instances of abuse in Massachusetts was demonstrated in the recent hearing before a committee of the legislature of that State relating to a bill to control animal experimentation. Notwithstanding most violent efforts on the part of English antivivisectionists to excite popular feeling by charges of wanton cruelty against scientific experimenters upon animals, the Royal Commission appointed to inquire into the matter "entirely acquitted English physiologists of the charge of cruelty." The Committee recommending Senate Bill 1063 has attempted no similar inquiry for this country, but it can be confidently predicted that similar charges made in the most reckless and wanton manner against American physiologists would be found to be equally unfounded.

It is not true that secrecy is practiced in the conduct of such experiments. In scientific publications these experiments are described in detail. There is no effort made to prevent properly qualified medical and scientific men from witnessing these experiments. For manifest reasons it would be as improper and undesirable to throw open such experiments to the inspection of those without any training or competence to judge of their character and value, as it would be to give similar publicity to surgical operations. In the absence of any demonstration of abuse of the practice of animal experimentation in the District of Columbia, this bill is unnecessary.

7. It is well understood that the organized and strenuous efforts of antivivisectionists to secure congressional legislation upon this subject is not so much to check abuses in the District of Columbia, where in fact they do not exist, as to influence legislation in the various States of the Union. Although they have made repeated attempts to secure legislation, generally far less stringent than that contemplated in this bill, in different States, they have hitherto been unsuccessful. Wherever full and fair opportunity has been given to physicians and scientific men, they have had no difficulty in demonstrating to the satisfaction of committees of our State legislatures the objections to any such legislation. We would call particular attention to the convincing arguments urged successfully against a much milder bill recently introduced in the legislature of Massachusetts, a State in which the antivivisectionist agitation has been particularly active.

8. The experience with legislation, similar in character to this bill but surrounded with more effective safeguards against interference with scientific experimentation in England, has been most unfortunate in its influence upon the advancement of medical science in that country. Many scientific workers in England, including Lord Lister, one of the greatest benefactors of the human race through his introduction of antiseptic surgery, have preferred to leave their country and conduct their experiments in continental laboratories, rather than submit to the vexatious restrictions upon their work. Earnest appeals have been sent by eminent men of science in England to physicians in this country not to repeat their mistake of yielding to the demands of antivivisectionists in this matter.

9. The District of Columbia already has an unusually comprehensive and effective law for the prevention of cruelty to animals, and there is no need of further legislation in the direction contemplated in this bill. Only properly conducted scientific experiments under proper authority are now allowed. Those who conduct experiments upon animals are no less subject to the provisions of the existing law than other members of the community. If they can be convicted of cruelty in the practice of their experiments, the present law provides adequately for their punishment. The antivivisectionists complain that they are unable to secure convictions of experimenters upon animals under the present law. If so, it is because they can furnish no evidence of cruelty in the conduct of the experiments convincing to a court of justice. Their demand that the doors of laboratories shall be thrown wide open to agents of their societies in order to procure evidence, would lead to a system of outrageous espionage utterly foreign to our system of government, and degrading and intolerable to the scientific men in charge of the laboratories.

10. This bill is unanimously opposed by the great scientific and medical bodies of this country, National, State and local, who recognize in its provisions a blow to freedom of investigation and to the advancement of medicine and biology. Among the five score and more societies which have protested against this bill may be mentioned The National Academy of Sciences, The American Association for the Advancement of Science, The Society for the Promotion of Agricultural Science, The AMERICAN MEDICAL ASSOCIATION, The Congress of American Physicians and Surgeons, The American Public Health Association, The United States Veterinary Medical Association, The Association of American Physicians, The American Surgical Association, The Association of American Medical Colleges, The New York State Medical Society and Association, and other State Societies, the New York Academy of Medicine, etc. The assumption that the protests of these societies have been made in ignorance of the provisions of the bill is absurd. It would be incomprehensible if Congress should ignore or disregard the united voice of these great organizations in a matter which directly concerns the welfare of medicine and biological science.

11. Although there is abundant evidence in the Report recommending this bill that the real sentiments of its advocates are hostile to scientific experiments upon animals, it is nevertheless asserted by them that the bill, if it should become law, would not in fact interfere with the proper uses of animal experimentation for scientific investigation and study. Such an assertion can be made only by those unfamiliar with the needs of medical and biological science and with the purposes of experimentation upon animals, or else ignorant of the provisions of the bill. To take up in detail all the provisions of the bill and to point out fully the manifold ways in which they would interfere with proper and legitimate uses of animal experimentation, would require more time and space than can here be given. This work has been done in part, but only in relatively small part by others, notably by the Secretary of Agriculture, the Hon. James Wilson, and by the former Acting Secretary of Agriculture, Dr. Charles W. Dabney, Jr., in their published letters addressed respectively to the Hon. Redfield Proctor and the Hon. James McMillan. It must suffice here to indicate only a few of the ways in which this bill would prove injurious to medicine and biology, but enough will be shown to demonstrate its fatally defective character.

A. The bill provides (Sec. 2, *b*,) that "The experiment must be performed by a person holding such license from the Commissioners of the District of Columbia as in this Act mentioned, or, by a duly authorized officer of the Government of the United States, or of the District of Columbia." It further provides (Sec. 3) that the Commissioners of the District may require the place in which any experiment is made by a licensee to be registered in such manner as they may direct and that every place for the performance of experiments for purposes of instruction shall be approved by the said Commissioners and registered in such manner as they may direct. It also provides (Sec. 5) "That the Commissioners of the District may direct any person performing experiments under this Act from time to time to make reports to them of the methods employed and the results of such experiments, in such form and with such details as the said Commissioners may require," and again in Sec. 7 the bill provides that "The Commissioners of the District may at any time disallow or suspend any certificate given under this section."

It is evident that the bill gives uncontrolled discretion to the Commissioners of the District of Columbia in the granting of all licenses permitting experiments upon animals. They may if they choose, grant all applications for license or they may refuse all such applications and thereby prohibit all animal experimentation in the District, except that conducted by officers of the Government of the United States or of the District of Columbia. Experiments by the latter officers, as well as by licensees, they may hamper so as to make the privilege of experimentation practically useless, by demands for reports upon the methods and results of experiments at any stage of the experimental investigation as often and with as much detail and in such form as they choose. An unfinished experimental research can be interrupted or brought to an end at any time by suspension of the license in the discretion of the Commissioners. No provision is made for any hearing by the applicant or the licensee. There is no appeal from the decision of the Commissioners. They are the sole arbiters in the matter. They are made the dictators of the medical profession by this bill in matters requiring expert knowledge and sympathy with the needs of medical science.

No one can foretell in what manner the District Commissioners would exercise the arbitrary powers conferred upon them by this bill. It is certain that if they exercised them so as to meet the approval of those from whom this bill emanates and the antivivisectionists in general, who are its advocates, they would antagonize the medical profession and scientists and would inflict serious injury upon human and veterinary medical science and upon biology. On the other hand, if they administered the law so as to meet, so far as the bill permits, the wishes of physicians and scientific men, they would as surely antagonize the great majority of the advocates of the bill, who would continue their agitation and endeavor to secure still more prohibitory legislation.

Among the many objections to this bill there is none more fatal in the principle involved or likely to be more so in the practical working of the proposed legislation than that this bill places in the hands of a body of men, who need not be and are not likely to be physicians or men of science, arbitrary powers, requiring skilled knowledge in their use, concerning matters of the highest importance to medicine and biological science and to the welfare of mankind and of animals.

B. The bill provides (Sec. 6) "That the President of the United States shall cause all places where experiments on living vertebrate animals are carried on, in the District of Columbia, to be, from time to time, visited and inspected without previous notice for the purpose of securing compliance with the provisions of this Act; and to that end shall appoint four inspectors, who shall serve without compensation, and who shall have authority to visit and inspect the places aforesaid, and who shall report to the President of the United States from time to time the results of their observations therein, which shall be made public by him."

It will be observed that this section makes no provision that the inspectors called upon to scrutinize and report upon the experimental work of physicians and scientific men shall possess any special qualifications for such remarkable and responsible functions. Can it be assumed that the President will appoint only those who possess the requisite qualifications and where will he find them? Our Universities and Medical Colleges and Hospitals and Government Laboratories search the country over to find men fitted to conduct the experimental investigations which this bill would regulate and control and they have difficulty in finding those with requisite training, scientific knowledge and special skill. And now this bill provides that over such men as these shall be placed inspectors to determine whether their experiments are performed in the proper manner and upon proper animals and for proper purposes and to make reports upon their experiments, which reports shall be made public.

The character of the inspection desired by the advocates of this bill is made sufficiently evident by the provision of the original bill (S. 1552) that the Commissioners of the District "shall appoint and authorize an agent of the Washington Humane Society to make such inspection." The attitude of this society toward animal experimentation is clear from the extract from one of its reports already cited (p. 285). It certainly may be reasonably assumed that this society and antivivisectionists in general will claim and will secure representation among the inspectors provided for in this bill. Nor is it unreasonable to suppose that they may even control the majority of the inspectors. In larger or smaller part, therefore, the inspection will doubtless be by men or possibly women, not only without special scientific knowledge but actually opposed to experimental medical or biological science. It would be entirely in the power of such inspectors to render the conditions for experimental work such that no one would care to undertake it.

It is a libel upon common sense to assert, as is insistently done by the advocates of this bill, that the objection of experimenters to any such system of inspection as that provided for in this act, is due to their fear of exposure of wanton cruelties practiced by them in the secrecy of the laboratories. As a matter of fact, no secrecy surrounds the practice of animal experimentation, and any properly qualified person has free access to the laboratories where such experiments are made.

C. The hardship which would be inflicted upon those engaged in experimental research by the provisions of the bill that at any stage of their investigations they may be called upon to furnish detailed reports of the methods and results of their work and that those, with probably no comprehension of the nature and purposes of the experiments, shall make reports thereupon, which shall be published, can be fully appreciated only by those who are acquainted with the conditions under which scientific inquiry is prosecuted. There are many important scientific investigations which would probably not be undertaken at all under any such vexatious conditions as these. These provisions, as well as others in the bill, can be utilized constantly to harass experimenters in case the law should be administered, as is not at all improbable, by those unfriendly to experimental inquiries in medicine and biology.

D. The bill prohibits important and necessary experiments and surrounds the performance of others with such restrictions as virtually to prohibit them. Exactly how far this prohibition extends can not be determined without an interpretation by the courts of certain doubtful provisions of the bill, nor can any one foresee what new kinds of experiment, not now provided for in the bill, the future progress of medicine and biology will require.

The bill provides (Sec. 2, *a*) that "The experiment must be performed with a view to the advancement by new discovery of physiological knowledge, or of knowledge which will be useful for saving or prolonging life or alleviating suffering." If this provision be interpreted according to the explicit language used, and it may be presumed that the courts would so interpret it, no experiment can be made (except demonstrations for lectures provided for elsewhere in the bill) which is not for the advancement of knowledge *by new discovery*, and this knowledge must be of one of two kinds, either physiological or such as will be useful for saving or prolonging life or alleviating suffering.

The term "physiological" is used both in a broad and a narrow sense, and it can not be confidently predicted how the courts might interpret it. To compel an experimenter to pause before each experiment which he is about to make and consider whether he can demonstrate to the satisfaction of a court that the experiment, if not for the advancement of physiological knowledge, is for the advancement *by new discovery* of knowledge, which can be utilized in saving or prolonging life, or alleviating suffering, would not be conducive to progress in the very kind of knowledge specified. The history of scientific discoveries in medicine, no less than in other fields, demonstrates that experiments undertaken without any thought of practical application, and yielding results which appear at the time to be devoid of all practical utility, have often laid the foundations of knowledge of the highest importance to mankind.

Two valuable lines of experimentation at once suggest themselves as forbidden by the words of this section, viz., experiments to confirm results obtained by others, and experiments to acquire manual skill in performing surgical operations. The first of these restrictions was pointed out by Dr. Chas. W. Dabney, Jr., former Acting Secretary of Agriculture. Although the report upon the bill states that "the bill does not bear this limited construction," it is difficult to see how the plain language can be construed otherwise, and, if it was not the intention to prohibit confirmatory experiments, the question arises why those who drafted Senate Bill 1063, in copying this section from the British law, omitted the paragraph in the latter which expressly provides for experiments made "for the purpose of testing a particular former discovery alleged to have been made." Certainly the framers of the British law could not have considered that experiments confirmatory of alleged discoveries were already provided for by the section in question or they would not have added the paragraph omitted from the Senate bill. There is no other natural inference than that it was deliberately intended to forbid confirmatory experiments.

Experiments upon animals in order to acquire manual skill in performing surgical operations, certainly are not experiments for the advancement of knowledge *by new discovery*. Whether it was intended to prohibit such experiments is not clear. In Sec. 2, *c*, it reads "nor in tests of surgical procedure need animals be kept completely anesthetized during the process of recovery." There is nothing, however, here or elsewhere in the bill to indicate that these tests are to form any exception to the general requirement that, save demonstrative experiments for lectures, all permissible experiments must be for the advancement of knowledge *by new discovery*. If, as seems to be the natural interpretation of the language of the bill, surgeons are not to be permitted to perfect themselves in methods of operating by experiments upon animals, this prohibition can be characterized as nothing less than inhuman. The only alternative is to make a human being instead of one of the lower animals the subject of experiment. There are many operations which a surgeon may wish first to try upon an animal before attempting them upon a human being. An eminent surgeon has said that a surgeon should not perform the operation for circular suture of the intestine and for intestinal anastomosis upon man without first practicing it on animals.

The bill provides (Sec. 2, *c*,) that "The animal must, during the whole of the experiment, be completely under the influence of ether or chloroform," excepting in inoculation experiments, tests of drugs or medicines, and during recovery from surgical operations. It is absurd to limit the choice of anesthetics to two. There are other anesthetics which produce equal insensibility to pain, and any one at all acquainted with physiological experiments, knows that there are experiments in which it is safer, better, and sometimes for the purposes of the experiment necessary, to produce anesthesia in other ways than in the only two permitted by this bill.

The absurdity of the claim that this bill is simply restrictive and regulative, and not prohibitive of experiments upon animals, can be shown in many of its provisions, and especially by that which forbids the survival of the animal after an operation unless kept continuously under the influence of ether or chloroform. The only exceptions to this provision are inoculation experiments, tests of drugs or medicines and tests of surgical procedure. The experiments which are prohibited by this provision are so many that they can not even be enumerated within the compass of this statement. All physiological and pathological experiments where the ends of the experiment can be attained only by observation of the animal for days or weeks after some operation, or after the administration (save by inoculation) of anything except drugs or medicines which may give pain, are prohibited by this bill, for it is impracticable to keep animals during such periods of time continuously anesthetized. Such important experiments as those which have shed light upon the functions of the stomach by gastric fistula, or of the heart by the experimental production of valvular lesions, or of the central nervous system, kidneys, and indeed most of the organs of the body by observations extending over some length of time after an experiment, are all prohibited by the conditions of experimentation imposed by this bill. All experiments are prohibited in which anything, except drugs or medicines, is simply fed or introduced into the stomach in case the experiment is calculated to give pain to the animal and extends beyond the limited period in which it is practicable to keep the animal under ether or chloroform.

It may well be questioned whether it was intended to forbid the large class of important and necessary experiments of the characters described. If it was not, then the bill is so loosely drawn that it should never pass in its present form. If it was intended to exclude all of these experiments, then the blow which its enactment would inflict upon biological and medical science is simply brutal.

There are other kinds of valuable experiments which are prohibited by this bill besides those specified, but enough has been said to show the error of the assertion made in the Report recommending it that "the bill is restrictive, not prohibitive," and to demonstrate that among the prohibited experiments are many of the highest scientific and practical value, including many which involve far less suffering to the animal than some which are permitted.

E. The bill provides (Sec. 4) "That a license shall not be granted to any person under the age of twenty-five years, unless he be a graduate from a medical college, duly authorized to practice medicine in the District of Columbia." There are graduates of Zoology and other departments of Biology under 25 years of age eminently qualified by their training for investigations involving experimentation upon animals. Concerning the effect of this provision upon the work of the Bureau of Animal Industry Dr. Dabney, in the letter already cited, says: "It would at once stop some of the experiments now in progress, and if it had been enforced in the past years would have prevented a large proportion of our scientific employes from doing this class of work."

F. The greater part of the investigations requiring animal experimentation in the District of Columbia are conducted in the Bureau of Animal Industry under the Department of Agriculture. This bill takes the scientific work of a Department of the General Government to a considerable extent out of the hands of the Secretary of Agriculture, and places it to a corresponding extent under the control of officials of the District of Columbia, and that too for matters which concern the agricultural interests of the entire country and only in relatively small measure concern the District of Columbia. The bill accomplishes this by providing that the Commissioners of the District may direct any person performing experiments to report to them from time to time the methods and results of their experiments in such form and with such detail as the Commissioner may require. It will be observed that it is not the Secretary of Agriculture who is to be called upon to report, but it is his subordinates. The bill further provides that if any of five kinds of animal (cat, dog, ass, mule, horse), are used for the experiment, a special certificate setting forth certain facts must be procured. The bill is singularly indefinite as to these certificates, especially not stating by whom they are to be given, or to whom application for them is to be made. If, as is not improbable, it was the intention that these certificates should be granted by the Commissioners, then the scientific work of the Bureau of Animal Industry is placed practically under the direction of these District officials, for no provision of the bill exempts officers of the Government from the necessity of procuring these certificates, as is the case with licenses.

No attempt has been made in this statement to present a complete analysis of Senate Bill 1063 and to point out all of its objectionable provisions or even to exhaust the objections to such as have been considered. No such complete analysis is necessary in order to prove the error of statements in the report recommending it that it is "reasonable and wise," "restrictive and not prohibitive," and permissive of all "useful investigations." It may be that the committee recommending the bill believed it to possess the moderate and reasonable character claimed for it. The defects of the bill are evident enough to those who are familiar with the requirements of modern medicine, in its scientific and practical aspects, and with the needs of biological science. So evident indeed are they that it has generally seemed unnecessary to medical and scientific societies and individuals, who have protested in hundreds against the passage of the bill, to do more than emphasize on the one hand the great benefits derived from animal experimentation and on the other the restrictive and prohibitive features of the bill. Apparently so convinced have many of the advocates of the bill been of its moderation, that they have assumed that these protests have been made in ignorance of the provisions of the bill, a most unwarranted and gratuitous assumption. It is not to be expected that any considerable number of the committee to which the bill was referred should possess that technical, expert knowledge essential for an intelligent judgment as to the effects of a complicated bill which prescribes by whom, and for what purposes, and upon what animals, and in what manner, scientific experiments shall be performed.

It surely could not have been the intention of the Senate Committee recommending this bill to inflict such serious injury upon medicine and science as, in the opinion of those who by their training, occupation and special knowledge of the subject are most competent to judge of its workings, it certainly would inflict.

THE ANTITOXIN TREATMENT OF TUBERCULOSIS.

OR THE DIRECT (TUBERCULIN PREPARATIONS) VERSUS THE INDIRECT (ANIMAL SERUM) METHOD OF IMMUNIZATION AGAINST TUBERCULOSIS.

Read before the Denver Medical Association and Arapahoe County Medical Society, Dec. 14, 1897.

BY CHARLES DENISON, A.M., M.D.
DENVER, COLO.

Since Koch's discovery of tuberculin some seven years ago, we no longer wonder that the majority of medical men were turned away from the employment of this remedy by its ill-advised use, and the resulting gross effects, as shown by Virchow, the great pathologist.

From the absurd advertisement of a Swiss barber "tuberculin injections given here," and the equally preposterous belief which at first prevailed that a means to destroy tuberculosis had been discovered, as easy of use as a household remedy, we have come to learn that if cure it will, it must be by a concentration of skilled effort, and a technique involving as much discrimination in diagnosis and care as does the differentiation of a complicated eye refraction, the microscopic determination of blood changes due to disease, the endoscopic study of internal organs, or any other delicate field of professional work.

The great mistake of the celebrated discoverer of tuberculin (which in a measure is applicable, also to his later discovery tuberculin T. R.) was that there was no due recognition of the failures of physicians in the diagnosis of tuberculosis. In other words medical men failed to recognize the great variation of the disease to be treated by so powerful a remedy. We can now see how unfortunate it was for Koch to allow his tuberculin to be indiscriminately used since no determination was reached as to what cases should be excluded, but rather a trap was set to catch the very class of cases which should never have had the remedy in its original crude form. I refer to the precaution announced in the first instructions that preference should be given to hospital cases where patients were to be kept in bed during the "reactions," in apparent neglect if not ignorance of the necessity of elimination, and the ever present need of recognizing other associated causative agencies, chief of which is that of climate. The concealed and therefore more serious tubercular lesions would be brought to light by the searching specific, and cheesy or tubercular pneumonias which would necessarily have to undergo the expected process of "necrosis" would in some way (?) have to be taken care of. Indeed the indiscriminate use of tuberculin was an absurd and indefensible proposition under the conditions specified. I abandoned Koch's proposed method within a month of its commencement, and thereafter refused to give the treatment unless patients were well enough to come to my office and could take exercise enough to eliminate the tubercular bacilli or their toxins when thrown off or set loose by the special agency used.[1]

So tuberculin is said to be a failure and the perennial essayist, in assumed wisdom, which seems almost ludicrous to one who knows the truth, exclaims, "Hic jacit" tuberculin the chief of specifics for consumption! As to the original product, should any professional brother desire to investigate the proofs, I can select for him a dozen or more persons, who were once actively tubercular, and who from seven to four years ago were treated hypodermatically with relatively large quantities of the crude tuberculin and who are now apparently well and free from any sign of tuberculosis.

As a result of these years of investigation of tuberculosis by such eminent men as Klebs, Trudeau, Von Ruck and Whittaker, there is no doubt in my mind that the healing specific, the immunizing agency, lies somewhere in the bodies of the tubercle bacilli. Koch practically acknowledges this when he uses the whole of the germ to make his new tuberculin T. R., a product in reality the clear portion of an *emulsion* of the bodies of the bacilli.

While among veterinarians the crude tuberculin has been generally used and acknowledged as the best diagnostic means ever found for the detection of tuberculosis in cattle (a diagnosis that I have thus far utilized with satisfactory result in twenty-one human beings), yet the successful application of the remedy in the arrest of human tuberculosis has been made but by very few. Those who have had the courage, intuition and skill to succeed in this line are well represented by Dr. James T. Whittaker of Cincinnati, who answered the objections to the use of tuberculin in an excellent paper on "General Impressions from Six Years use of the Old Tuberculin," read before the British Medical Association at Montreal, Sept. 2, 1897. He concludes in these words, "aside from the objections urged by ignorant and prejudiced people, not worthy of notice, four apparently valid arguments accumulated, in the course of time, against the use of tuberculin in man.

"1. That the reaction occurred in the absence of tuberculosis. This objection has been met by the demonstration of concealed deposits.

"2. That the reaction occurs in other diseases, syphilis, lepra, actinomycosis, etc. This objection has been met by the demonstration of tuberculosis coincident with or complicating these maladies.

"3. That the reaction will occur in the most quiescent cases even where the bacilli are not only concealed but encapsulated and deposits are partly calcified. This is no objection at all, but a most striking confirmation.

"4. That the use of it is dangerous; that it not only awakens the disease from latent sources but disseminates it over the body and this leads to an infection and increases the danger of infection of others. This conclusion rests on a false premise and confounds the *post* with the *propter hoc*." I have quoted so much because this verdict, like everything Dr. Whittaker writes, is a clearer statement than I could make; but I can heartily endorse it, for during the same long period there has been no time during which I have not had from half a dozen to twenty tubercular patients undergoing this form of immunization by means of some form or derivative of tuberculin.

It has been my desire, if possible, to find such a derivative from or modification of tuberculin, uniform, standard, and freed from all undesirable qualities, as will be acknowledged by the medical world to be a true specific for tuberculosis. I mean just as much an antitoxin for this chronic and perplexingly variable infection, as, in its way, is the antitoxin for diphtheria for that acute and unique disease. You may assert that, with the necessity for a congenial soil for tubercular infection before the disease can find lodgement, and with all the varying complications of susceptibility, of natural resistance, of climate, of age and associated conditions—different in every one of a thousand cases—that the thing is impossible, I believe it *is* possible and that all these varying conditions are simply elements to be duly weighed and accounted for in our battle against this insidious disease.

There are a dozen, more or less, of tuberculin preparations, extracts or serums, which I have to mention.

1. The crude or original tuberculin of Koch, which is the glycerin extract of the dead bacilli, as I understand, filtered through porcelain.

2 Then comes Klebs' first modification, a purified article called tuberculocidin, in which the crude tuberculin is deprived of much of its toxins and reactionary power.

3. Following this is the name antiphthisin which Klebs gave to practically the same product manufactured in this country.

4. Tuberculinum purificatum, which name Dr. Karl von Ruck of Asheville, has given to his manufacture of practically the same preparation.[2]

5. A purified tuberculin made by Dr. Whitman of Los Angeles, Cal., from the culture fluid in which the bacilli have been grown, not yet standard in strength but which I have found to be moderately efficient.

6. Oxytuberculin,[3] the lately much talked about

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[1] Exercise and Foods for Pulmonary Invalids," pp. 13 and 14.

[2] We understand this is made as follows:

"Take the entire ripe culture of tubercle bacilli and transfer to vacuum apparatus, and concentrate to 1-10 of the bulk at 55 degrees C. This takes about a month; remove from vacuum and filter through paper for removal of bacilli, and next through porcelain. Now precipitate with acid solution of sodic-iodid of bismuth and filter. Next neutralize the acid solution for reprecipitation of bismuth salts and filter. Next precipitate with absolute alcohol adding enough to bring the entire bulk to 90 per cent. alcohol; let stand and when precipitate has formed, filter. Collect, precipitate and wash it with more alcohol (absolute) dry, weigh and make 1 per cent. watery solution and filter. It (purified tuberculin) differs from antiphthisin in that it is made and concentrated with the tubercle bacilli in the fluid and it is filtered through porcelain as well as paper. It differs from tuberculocidin, in that it is prepared and concentrated at a low temperature (50 degrees C.) instead of at (100 degrees C.) boiling temperature, and filtered through porcelain.

remedy of Dr. Hirschfelder of California, in which a small per cent. (said to be 5) of tuberculin is, under great and protracted heat, saturated with peroxid of hydrogen. The effect of this, if any, besides that of the contained tuberculin, the discoverer claims, is the conversion of the toxin into an antitoxin. This increase of curative effect but slightly shown by my own limited use of the remedy, as I have had only a four-weeks trial of it in a single case. So far, however, the result is not unfavorable. If this creation of an antitoxin outside of an animal body is verified, it is indeed a wonderful discovery; then it is to be hoped that the bulky dose prescribed for injection will be reduced to 1 c.c. or thereabouts. It is not impossible that the excessive oxydation has simply destroyed the toxins, and so left a large amount of a healing property, not yet fully understood but common to so large a bulk of tuberculin.

7. Koch's new tuberculin T.R., descriptions of which you have lately seen in the medical press.

8. Dr. Karl von Ruck's watery extract of the bodies of the dead bacilli, which is a like powerful remedy in immunizing strength to the new tuberculin (T. R.) and I judge will compare favorably, with the same.

This extract is liable to give reactions in susceptible persons, for it is highly charged with immunizing power.[4] I have tried the procedure recommended by von Ruck and found it in the main quite satisfactory, namely to commence with the purified tuberculin and work up from 1-10 c.c. to 2 c.c. and then every second or third day give 1-10 c.c. of this stronger undiluted extract, possibly working up to 3-10 to 5-10 c.c. as a terminating dose, the intervals between treatments being lengthened toward the close of the course.

I will explain why I have not used Koch's new tuberculin (T. R.) While the fact previously cited, that the bodies of the bacilli contain the immunizing or healing principle, may be proven by the claimed improved effect of the new over the old tuberculin, yet the admitted fact remains that it is practically an emulsion which Dr. Fisch says is essential according to Koch's intentions and that its curative power would be lessened by filtering through porcelain. Drs. Trudeau and Baldwin (*Medical News*, Aug. 28, 1897) claim to have found the fragments and the whole bacilli in it by microscopic examination. While this would not deter me from using it in an understood case, where the infection was already so great that thousands of bacilli were known to be thrown off daily in the sputum, yet I do not like the technique of its administration nor the idea of my diagnosis being "hedged" against by such a range of dose, equivalent to 1 to 500,000, as Koch (from his experience with the average medical man) has deemed it best to establish. The finally accepted remedy should, I think, be not so liable to deteriorate; it should be stable, uniform, made entirely safe by careful filtration, and the range of dose need not exceed 1 to 1,000 or less.

I am aware that Trudeau has claimed that antiphthisin is only a very weak tuberculin, but in my considerable experience with it and the tuberculinum purificatum during the past four years, in comparison with the use of crude tuberculin during the previous three years, I have been satisfied that it was safer, that there was less resulting general reaction as well as local reaction in affected areas. The distinctive tuberculosis temperature is apparently more easily controlled by its use.[5]

The tuberculin products thus far considered, with the possible (?) exception of oxytuberculin, are supposed to work by their toxin creating or stimulating the production of an antitoxin in the blood of an affected person. We now mention an additional class where the antitoxin has already been produced in an animal's blood, preferably one already immune, and then through its serum made available in the treatment of tuberculosis. I believe it is possible to do this, as is the case with diphtheria. Whether it is preferable to making the affected system create the antitoxin, I will not attempt here to discuss. It is a difficult and important point to decide. I have seen some persons (previously under the tuberculin treatment) who seemed after some months to be losing their thereby acquired immunity, and whose systems seemed to respond to a renewal of the treatment, as though that particular stimulant to antitoxin activity was just the influence needed. Whether an artificially created antitoxin introduced from without the human body will have an equal or a better effect I have yet to learn.

However, from the many investigations thus far made with serums, we are enabled to assume that an efficient antitoxin to tuberculosis can be produced in the serum of an animal's blood, but it is yet undetermined how much of this effect is purely antitoxic and what proportion of it is transmitted tuberculin. The question of transmission would seem to be relative, the size of the animal treated, and the character and amount of the toxin administered, together with the time before and again after treatment with reference to the taking of serum, all being important considerations. This, too, is a difficult question to decide, for the toxin, if transmitted, may be wholly or only partially neutralized by the antitoxin created in the animal's blood. E. Müller (*Jahrbuch f. Kinderheilkunde*, Vol. xliv) claims, from a study of the blood of children treated with the anitoxin of diphtheria, that the time of the excretion of the antitoxin varies in different individuals, even of the same age and body weight, and that there is no direct connection between the size of the dose of the antitoxin and the duration of the power of immunity, *i. e.*, the time the antitoxin remains in the blood. He shows the protective power of the blood on successive days of a number of individuals, sufficient antitoxin to confer immunity seldom remaining after three weeks. Should we not bear in mind that this study was for diphtheria, comparatively active in its toxicity, and admit for a more chronic disease, as tuberculosis, a similar variability in its antitoxic and immunity laws commensurate with its chronicity?[6]

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[3] Transactions California State Medical Society, 1897.

[4] In making this extract virulent cultures are used and the proteids (it is claimed 80 to 90 per cent. of them) are extracted with ether from the filtered bacilli. After repeated dryings on porcelain plates, the filtrates (bacilli) are repeatedly powdered and macerated over permanent water baths and the resulting proteids are passed through porcelain in a perfect watery solution which is then made to a standard strength watery extract, which when used, can be still further diluted if desired.

[5] For cases in illustration of these favorable effects reference is made to my previous paper on these subjects. "Tuberculin and the Living Cell." Transactions of the Am. Climatological Asso., 1892, and "Antiphthisin," Medical Record, July 20, 1895.

[6] Over four years ago, learning from experiments on healthy puppies that they would stand for their size, very large doses of Koch's tuberculin, I conceived the idea that the toxin in this extract might be thus neutralized and a beneficial change in the tuberculin treatment result. I went to the expense of having a healthy pup treated in the course of seventy-two hours, with about 1 c.c. tuberculin to the pound weight. Twenty four hours afterward the pup was killed and all his serum taken. This was nicely done for me by the New York Biologic and Vacinal Institute. Though no harm resulted from the use of this serum, it was not a brilliant success, for I got the rash, which serums so often cause, and what I thought was a lack of the

Of late the proper technique of serum production is being gradually determined and we have now several antitubercular serums which have gained for themselves a curative reputation.

In Italy Maragliano's serum, made at first from a goat's blood (as I understand it), is now obtained from the immunized horse. Maragliano's results with the goat's serum speak very well indeed for his product and the proportion of successes were about the same, but no better, so far as I could determine, than ours in this country with antiphthisin or purified tuberculin. Furthermore the absence of definite knowledge of the manufacture, strength and dosage of his serum, precluded my own trial of it. This is the "cure" which has lately been lauded to the skies by the sensational newspaper claims of a New York daily.

10. The antitubercle serum of Paul Paquin, though one of the first made in this country and tried by many physicians, I have no personal knowledge of except from results (mostly favorable) observed in a number of patients coming under my observation after they had been treated with it. These results were not distinguishable from those of crude tuberculin, and I can not say that there was not the transmitted effect previously referred to.

11. Professor Crandall, also of St. Louis, immunized a horse I believe with tuberculin (?) taking some two years for the process before the serum was used. I gave it a faithful trial. The results were not bad, nor were they as good as with the purified tuberculin. I could not determine that there was any "transmitted" effect of tuberculin, but I got the serum rash in two out of five cases treated.

12. The H. K. Mulford Company, of Philadelphia, have been faithfully perfecting a serum. To produce this they chose asses as the animals most immune to tuberculosis. When in Philadelphia last June, I examined these animals at their bacteriologic laboratory and was one of the first to try their perfected serum. Its effect was better than that of any serum previously tried; seemed to raise the patient into an exalted state, hopeful of recovery, with physical signs and ability to do, perceptibly improved. This was strongly shown in two young men of the five cases treated, who were hopelessly advanced in tuberculosis, both of whom had large excavations in the lungs. One of these afterward went home to die, and the other has improved by living among the foot-hills and having an injection of this ass's serum once or twice a week. The objection to this serum is its lack of sustained effect and the serum rash, which occurred in one or two cases.

13. We now come to consider the last and I think the best of the antitubercular serums, the antiphthisic serum (T. R.) made by the John T. Milliken Company of St. Louis, according to the formula of Dr. Carl Fisch. In his address, read before the Mississippi Valley Medical Association, at Louisville last October, Dr. Fisch presented the tabulated results of an elaborate animal experiment, or test of this new serum. The serum is peculiar in that the selected horses from which it is taken have been strongly immunized, charged with Koch's new tuberculin (T. R.), the process usually taking four months and the serum being drawn fourteen to twenty-eight days after the last injection. When it is considered that for a last dose 50 c.c. of tuberculin T. R. was given the horse, which I am informed has now been increased to 100 c.c., we can get some idea of the enormous load of tuberculin these animals are carrying in the blood by remembering that according to Koch, the initial dose of tuberculin T. R. should be 1-500 of a milligram.

Between one and two hundred guinea pigs were used in Dr. Fisch's interesting test.

1. The T. R. serum was shown not to increase but rather to lessen the temperature of a healthy guinea pig for the first three to nine hours.

2. Guinea pigs previously immunized with T. R. serum withstood without harm fatal doses of virulent tubercle bacilli virus, while the control animals died in twenty-one to twenty-four days.

3. The least quantity of T. R. serum needed, previous to the poisoning of the guinea pig, to sufficiently immunize him was determined: 2½ c.c. in five injections during the previous month being sufficient to keep alive and healthy a 600 gram weight guinea pig.

4. The T. R. serum and virus were injected mixed and the proportion of the former sufficient to neutralize a fatal dose of the latter was thus determined *i.e.*, from ¼ to 1 c.c. of the serum.

5. Separate injections of the serum proved that (even commencing the tenth day after guinea pigs had received the fatal injections of the poison) they lived while the controls died in from twenty to twenty-eight days, as well as three controls treated with Paquin's serum, after the fatal toxin had been administered to them four days.

6. The serum treatment was shown to have a lowering effect on the abnormal temperature of these poisoned guinea pigs, *i.e.*, from the second to the sixth day a total average decrease each of 2 degrees F.

7. The amount of T. R. serum which would inhibit the poisonous effect of tubercle bacilli and also which would inhibit the reaction to tuberculin was determined; all of which constitutes an experiment calculated to fill us with hope for the trial of this new serum on human beings. Dr. Fisch claims that if there are reactions to T. R. serum which he does not ordinarily find in the affected human being, that they are not the same as from the crude or old tuberculin. To me it does not seem to be so harmful if there are some slight reactions according to the dose given and the susceptibility of the patient, just as we would expect from this remedy; for even if the tuberculin T. R. has not all been neutralized or changed to an antitoxin in the animal's blood, we have a stable, soluble, preservable in standard strength remedy, chiefly in antitoxic form, one which can be relied upon for immunization against tuberculosis, and safe compared with Koch's new tuberculin. How permanent its effect will be has to be left for the lapse of sufficient time to determine. The half dozen cases I have to report on, are not claimed to establish a cure, especially as I have never allowed myself to abandon other and important means of relief simply because I happened to be giving any of these forms of tuberculin. We need all the help that the proper individualizing of a patient will suggest, and we will contentedly bear the charge, sure to be made, that the always admitted essential aids, the preferable climate with good feeding, systemized exercise (including proper inhaling), and hopeful conditions or environments have done it all.

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distinctive healing sounds I had expected to find in the affected lung, and so went no further with it.

Case 1.—S. H. F., aged 48; machinist. From Indiana, one month in Colorado when first seen by me July 28 last. His lung disease is said to have commenced with a chill and fever May 1. He is not improving, I think because of tubercular pleurisy at base of right lung, the apex of which is excavated, and top of the other lung slightly affected. A case of laryngeal tuberculosis as well, with nasal complications, bilious temperament and torpid liver. Not a favorable case by any means, when one considers that the daily ounce of purulent expectoration contained fifty-five tubercle bacilli "to the field" on September 15, when the antiphthisic serum T. R. was first administered. The injections were given every alternate day below the shoulder blade commencing with ½ c. c. and gradually increased until a decided reaction limit was found at 1½ c.c. Reaction temperatures inclined to be prolonged of 1½ to 3 degrees F., were found after 1¼ up to 1 7-10 c.c. doses, and I learned that I had a more powerful serum to contend with than I had ever used before. A return to 1 c.c. for the dose gave better results with no temperature rise above 99 for quite a while. Meanwhile up to October 30, he had received 25 c.c. in twenty-one injections, the sputum had greatly diminished in quantity and showed "ten to field" in about two weeks and "one to field" in six weeks. The pleurisy had subsided, partly at least, controlled by wearing a restraining bandage devised to specially limit the movement of the affected area. The effect was good and all the physical signs improved. Unfortunately this patient had to go back to his Indiana home, October 30, but he is still having the remedy administered there and reports improvement continued, with a gain in weight of twelve pounds since the commencement of the treatment.

Case 2.—F. J. M., aged 24; draftsman. Came to Colorado in May, 1897, from Massachusetts. Lung trouble probably dated back to pneumonia five years ago, and a severe cold one year ago. Decrease in weight of twenty-four pounds from his average to 108 pounds, both apices show an advanced fibro-tuberculosis, the third stage being more marked on the right than on the left side. By this evidence the diagnosis of a non-active fibro-tuberculosis both sides was made. Serum T. R. has been given for its general effect with the result that we now have a diminution of expectoration and some improvement. The proportion of the very few bacilli in sputum not yet much changed, improvement in physical signs but no gain in weight, though bad environments and confined occupation, leading to frequent colds, are disturbing elements which have to be accounted for in this case.

Case 3.—Sept. 20, 1897. Mrs. H. Age 27. Came from Connecticut. Weight at this date ninety-nine pounds. Had a hacking cough for eleven years, and two years ago sympathetic whooping cough and fever at times. Now some restrained action at base of right lung where once she had pleurisy, but the chief trouble is a chronic catarrhal fibro tuberculosis, second stage, upper half of left lung, with softening spot threatening under left shoulder blade. Commenced the T. R. serum September 22, and on alternate days gradually reached 1 c.c. for a dose which has not been exceeded. Bacilli to the field, seventeen large with streptococci and staphylococci. November 2 and 18, seven and eight to the field, small and beaded and less "mixed" infection. November 28, the record contains this note—Has taken 27 c.c. antiphthisic serum and has now no reactions and physical signs have all improved. The temperature being below 99 degrees P.M. and weight now is 106 pounds.

Case 4.—J. A. R. Chemist, age 28, came from New Orleans, July 6, 1897. First seen by me September 18. A case of tubercular broncho-fibrosis of six years standing with hemorrhagic tendency, first stage; both upper halves of the lungs, chiefly right. Up to date taken the T. R. serum treatment ten weeks every other day since September 19. The spirometrical record has improved from 170 cubic inches to 200. He has improved in weight and in general as well as local signs. The record of his sputum examinations is as follows: September 18, 25.3 to the field; September 30, 20.3 to the field; October 18, 2.5 to the field. November 2 and 19, one to five and one to ten fields. December 3, 4 to field (been confining himself too closely indoors.)

Case 5.—J. E. L. Age 24. Newspaper reporter. Came from Pennsylvania, July 4. A case of laryngeal tuberculosis with broncho-fibrosis originating some two years ago but aggravated by overwork at night, one year ago. First stage, left side chiefly affected, but evidences of bronchial involvement top of both lungs. Has taken the serum treatment over six weeks (18 c.c.) with exercise, inhaling, etc.; doing well. Had left side pleurisy at one time which has disappeared. Expectoration much lessened in quantity, chest sounds improved, weight increased six pounds. No elevation of temperature now, though there was a little during the first part of the treatment; voice which was quite hoarse has improved and strengthened. Bacilli to field October 13, seven, November 20, one to three fields. December 14 none.

Case 6.—W. S. Book-keeper. Age 31. Arrived from Wisconsin, October 28. A case of tubercular broncho-fibrosis with suspicious laryngeal complication, both lungs affected in first stage, also has fistula in ano. Acclimatization may have something to do with his improvement for it has certainly been remarkable. Before giving the serum injection his temperature each day was from 98.5 degrees to 100.5 degrees and by the time 1 c.c. dose was reached the next day's rise was slightly increased. Since then 99.2 degrees has not been exceeded. December 3, after 12 c.c. had been given, the record showed, weight increased 156 pounds, a gain of six pounds in one month. Fistula nearly stopped discharging, sputum lessened in quantity about five times, and the bacilli in it reduced from 23.2 to 2.8 to the field. The physical signs and general strength are also on the gain. In fact the outlook for this, as well as for the others of this group, is bright for a permanent arrest of the disease. There have been five or six others who have taken the same treatment for shorter periods, but not long enough for any definite results. One of them, however, shows great succeptibility and the diagnostic effect of the T.R. serum which is worthy of notice.

A gentleman aged 26, referred to me by his physician in Pennsylvania, was seen on October 22, having arrived in Denver two days previously. His trouble seemed to have originated ten months previously, and he had visited North Carolina without benefit. A laryngeal and pharyngeal tuberculosis with lung involvement very slight at both apices, with principal centering point in left inter-scapular region, seemed to me at my first examination to be all that there was to explain the case. But the effect of the T. R. serum injections made manifest the incompleteness of my search as well as that of several physicians who had examined him previously, namely, that I could not reach the 1 c.c. dose the general and fever reactions were so great and prolonged. At two times, after 7-10 and 6-10 c.c. injections, he informed me he had stayed in bed all day, he felt so ill and feverish, the grippy signs being similar to occasional reactions I have seen from the the old tuberculin. I felt confident there was a concealed cause somewhere. This the stethoscope finally revealed in the left infra-mammary region, where, over an area, not larger than a silver dollar, pleuritic friction with fine crackles were heard only at the end of forced inspiration, and without any pain. Under proper restraint, to promote adhesion and limit movement, I think this condition is gradually improving and that this case will also be a favorable one.

In closing I will add that this diagnostic power, a valuable evidence of the real efficiency of the new remedy, together with the infrequency of the resulting serum rash (though local reaction, infiltration, etc., at the point of needle puncture will sometimes be seen), is or ought to be a recommendation for this T. R. made serum; especially to those physicians who understand its import. That this preparation can be made standard and safe will also do much toward overcoming the natural prejudice which pertains to the use of either Koch's old or new tuberculin.

HOW WE TREAT CONSUMPTIVES TODAY.

Read before the Tri-State Medical Association of Alabama, Georgia and Tennessee, at Nashville, Tenn., Oct. 13, 1897.

BY PAUL PAQUIN, M.D.
ST. LOUIS, MO.

From the very beginning of the application of antitoxins in diphtheria, tetanus and other infections, it was hoped that it would also be beneficial in tuberculosis, and to that end many investigators have labored faithfully in all parts of the world. Maragliano, in Italy, first sought a remedy in the natural blood serum of the ass, and in the latter part of 1885 or in 1886, he reported the results of his work with the serum of the same animal, previously treated to increase immunization. Prior to this, however, Richet, Héricourt and others in Europe had used the natural dog blood serum in various forms of the disease. I began to immunize horses against this affection in 1894, and in January, 1895, reported the first clinical results with the first immunized horse blood serum ever obtained or used, so far as I am able to learn. Many criticisms, kind and unkind, and unwarranted reflections scarcely dignified, followed, and some have stooped to public persecution, but the work has progressed. Today, amidst the puerile denunciations of sciolists, I have the consolation of finding my humble researches respectfully considered by some of the leading scientific lights of Europe and America and, the results obtained with it, attested by conscientious clinicians of high reputation in many quarters of this and other countries.

In spite of the beneficial effects of climate and other forms of treatment in vogue, and the vaunted claims of recoveries said to have been produced by a hundred different processes, there seems to be no doubt that sero-therapy, being nature's own remedy in infections, is the most promising. None of the other therapeutic measures used seem to offer so much hope or confidence. A seventh of the population die from the effects of consumption in one form or another, and probably four-fifths of this percentage succumb to the disease affecting the respiratory organs. Such an excessive mortality due to one disease warranted the beginning and continuation of my experiments, and investigations by the whole profession, in any legitimate line, for the discovery of a treatment that shall subdue suffering, reduce the mortality and arrest the progress of inherited conditions of tuberculosis.

Tuberculosis may affect all the organs of the body, but its seat of preference is in the chest. The respiratory organs of this cavity offer, apparently, the best field for the germs to grow, and more beings succumb to pulmonary phthisis than to all the other forms of tuberculosis together. It is this form I shall consider chiefly in this paper. It is the kind we see every day.

First, what is the nature of pulmonary phthisis? It is, unfortunately, nearly always a complicated affection, even in the very early stages. Very early in the development of the disease, we find associated with the bacilli of tuberculosis a number of other germs, among which some are as deadly and as destructive as the specific microbe. Comparatively speaking, tuberculosis is essentially a slow malady, even in acute cases. Its primary lesions consist of one or several local points of inflammation, due to the growth and multiplication of the bacilli, which occurs at the expense of the cells, their secretions and products, among which the germs are lodged. During this development, toxins are generated. They are poisonous, as the name indicates, and they cause the death of the cells around them and these, eventually, soften and become liquefied. It is thus that we obtain the first formation of caseous matter of pure tuberculosis which, in such conditions, is not mixed with the products or pus of the ordinary septic or pyogenic germs. During this first evolution of a case of tuberculosis, at its initial point of infection, a protective envelope is formed by nature's recuperative forces, and it is soon such as to surround the lesion, thus circumscribing it and limiting the pathologic development. Then we have formed a tubercle, which may vary in size from that of a point of a pin to a walnut or larger, the most voluminous nodules being usually the result of the junction of several small tubercles or their coalescence. If a section is made through tubercles at various stages of their development, it will be found that from a hard consistency at the beginning they gradually soften and, so far as germs are concerned, they first contain only the bacilli of tuberculosis. But, when softening of these tubercles takes place to the degree that their envelope ruptures, there is offered to the germs which are inhaled, a means of ingress into diseased tissues which are fit soil for the latter's development. This is the beginning of mixed infection. From that time on, the expectoration of a patient not only demonstrates the existence of consumption germs, but large numbers of other pathogenic microbes, such as the streptococcus, staphylococcus, the tetragenus and numerous other complicating organisms more or less effective in their power to destroy tissues. Such complications seem to be of tremendous power in the causation of softening of large areas of lung tissue and in the production of cavities. Then, we have to deal not only with the associated microbes and the lesions they produce, but also with the toxins which they generate and which, separately or collectively or, perhaps, in chemic combination, produce various forms of toxemia and alter the blood, the nervous system and, as a consequence, affects the whole organization banefully in a more or less pronounced manner.

Tuberculosis in the early stages, before serious microbic complications arise, produces as a rule a comparatively mild fever, the temperature seldom rising above 101 degrees F. When the complications appear, the temperature rises to 102 degrees F., 103 degrees F. and higher, according to the degree of infection, the extent of the lesions produced and the quantity and quality of the toxins. It is not necessary for the purposes of this paper, to go deeply into the pathology of tubercular developments. I merely desire to impress you with the importance of recognizing the nature of the lesions and other pathologic conditions, in a general and special way, before applying any remedy, and also the necessity of considering the peculiarities of each individual case, in order that the disease be not treated only on a general plan supposed to be applicable to all; but rather that each individual case be treated on its merits. It is not enough to treat consumptives as such. One should treat the patient against the general and special diseased conditions existing. The local lesions and the special effects thereof; the direct results of tubercular development upon remote organs or systems; the general depression dependent on such conditions; the individual characteristics and mode of life; the inherited predispositions; all these should be considered before instituting treatment. The disease yields or resists very differently, according to the nature of the infection, its effects and the peculiarities of the patient's individuality. It is needless to say, for instance, that patients who have inherited the elements that predispose to tuberculosis do not offer the same physical resistance to the destructive power of the germ of this disease as do those unfortunates who have contracted the malady by accident and have more vital energy. In concluding this preface to the discussion of the treatment of tuberculosis, I wish to say a word with reference to the method of producing the antitoxins which are most suitable for the treatment of consumption.

As stated above, my first publication on the subject of serum in tuberculosis was made early in 1895. At that time, I was not ready to publish in detail the *modus operandi* of the laboratory processes. Since then I have repeatedly, at various medical meetings and through the medical press, explained more or less fully the various methods of immunization which I have tested from time to time. In 1894, I realized that the simple use of toxins in the treatment of the horses used for the production of antitoxin was not sufficient to produce complete immunity because it had been demonstrated that not only the liquid toxin (viz., tuberculin) of the germ of consumption was poisonous, but also that the structure of the parasite contained poisonous elements of a deadly character. Thus it was, that very early in my work, I used not only tuberculin for injections of the animals used to produce antitoxic serum, but used besides the structure of dead germs or germs with vitality purposely lowered and then mixed with sterile water. I have used the live germs also, following injection of these solutions. Thus it will be seen, that at the beginning, I used chiefly tuberculin to immunize the horse, gradually adopting methods which insured, more and more, the effects of reaction upon both the liquid poisons and the germ substance. Some tuberculins I used at the outset were produced by recognized authorities; chiefly such as Koch and the Bureau of Animal Industry in Washington. By the mixture of these liquid toxins and the germs, seriously modified or not, all the elements of the tubercle bacillus entered into the immunizing agent. But a question of importance, with respect to the reaction of the animal to these injections arose during that work, and it was this: What proportion of the toxic element of the germs was absorbed by the economy of the horse? It was evident that the greatest quantity of the most virulent quality of all the tubercle toxins, be absorbed in order to produce the greatest reaction and the highest immunity. Koch of Berlin gave help to the production of more perfect immunizing material when he brought forth his new tuberculin, which he specifies under the name of T.R. This, according to the publications which have appeared, is nothing more than the poison in the structure of the germs of tuberculosis extracted by rubbing these germs in a mortar, and by centrifugalization means. For use, this preparation is mixed with sterile water or glycerin, or both, and may be preserved by the addition of a minute proportion of formaldehyde or .3 to .4 per cent. of trikresol (as is the case for the preservation of the serum itself). The object of this pulverization of the germ structure is to liberate the toxin as much as possible and facilitate the absorption and assimilation of every toxic principle they contain. We produced practically the same thing at the laboratories under my control, for at least two years, for the purpose of immunizing horses.

By injecting a mixture of tuberculin and pulverized germ substance into a horse, in doses varying from one cubic centimeter daily or periodically to thirty or more, during from two to four or six months, we get a blood with serum that has resisting powers more or less pronounced, against the development of tuberculosis.

Now, as to the treatment of the disease. Bearing in mind the essential factors that contribute to the pathology of tuberculosis and the various circumstances that may influence it, how should we treat the disease today? Is sero-therapy promising enough to warrant its use and warrant further experiments and investigations? Yes. If it arrests one case in a certain stage does it, therefore, promise to arrest another in a similar stage, irrespective of other influences favoring destruction? No. There is no one treatment applicable to all forms of tuberculosis, irrespective of the conditions complicating or influencing the malady, or irrespective of the actual pathologic conditions locally. Anti-tubercle serum can be justly expected to act only against the purely tuberculous processes, and this, by no other means than the usual physiologic interference which nature herself sets forth to neutralize the toxic products of infections and subdue the microbic invasions. Sero-therapy in the treatment of consumption has its reason of existence because it is based on natural law. Yet it should be sustained by such forms of special and general treatments as the conditions present may demand. This assistance is useful to facilitate and hasten the repair of the damage done to the organization. True, we have on record apparently complete recoveries from serious conditions, which have occurred after the exclusive use of anti-tubercle serum or serums for mixed infection; but we have a greater number of such recoveries and more numerous improvements as the result of scientific management of the patients and a properly combined treatment including serum as special medication. A patient may recover by the effect of serum alone, when the result of the disease is not such as to affect organs or systems of paramount importance, such as the lungs, the throat, the circulation, the nerves, the stomach, etc., so severely, as to preclude the possibility of their restoration by nature's own force, after the baneful effects of germs and their toxins have been removed by the antitoxin. If such organs or apparatus are diseased practically beyond repair, particularly when mixed infection exists to a serious degree, anti-tubercle serum, if it does arrest the progress of the tubercle bacilli, can not directly repair the physical and physiologic loss of the tissues and their vitality, and death may ensue. Here is where accessory treatments are needed. If there be a mixed infection and serum is tried, a serum prepared specially for this condition is essential, such as the anti-streptococcus serum, which is produced on the same general principle as that for tuberculosis or diphtheria, and which is applicable in many of the usual mixed infections of any disease.

The aim of sero-therapy in tuberculosis then is, first of all, to counteract the effect of the toxin; second, to interfere with the progress of germ life; third, to restore or create anew in the organization physiologic recuperative powers, thus assisting in restoring the equilibrium of the faculties and the vitality of the organization as a whole. It is plain, therefore, that the serum treatment, like all others, promises most in the earliest stages.

From all that precedes in this paper, it would seem evident that in the treatment of consumption one should, first of all, pursue a wise course of management, and second, general and special treatments suitable to each case. Indeed, it may be stated as an axiom, that all the hygienic influences that may be brought to bear on the system to improve its vital powers, should be directed to play their part.

GENERAL TREATMENT.

Climate is a point which most practitioners justly insist on being properly considered. Dry climate, free from the sand and dust storms should be chosen, if practicable. It may be hot or cold; both are beneficial in different classes of patients. It should be remembered that some tuberculous patients suffer much from heat or cold, according to their condition, and others the reverse. As a rule, emaciated, anemic patients prefer a warm temperature and stand the effects of cold very poorly, while those with more flesh and warmer blood thrive more or less under its influence. Altitude is not of so much consequence. Palm Lake, in California, which is below the sea level and yet exceedingly dry, is said to be the most beneficial locality for consumptives, while equally good results are claimed for the altitudes from 2,000 to 10,000 feet as exist in Colorado, New Mexico, Texas and some states of Mexico. The beneficial effects of climate are said to depend chiefly on the germicidal and stimulating properties of ozone and the purity of the air; therefore, it may be obtained, in a measure, in a room in a damp climate, in which such air may be to a degree created, by means of electricity and otherwise.

As a rule, patients are removed to suitable climates when it is too late, when they have cavities and are almost unavoidably doomed. On the other hand, those who do go to such climates usually return home too soon. Indeed, those who migrate to dryer climes for lung diseases should remain there if it agrees with them. They should make it their home. To return from such places to dampness usually means relapse and death.

Hydrotherapy is sometimes useful in consumption, particularly in the earlier stages, and more especially in those who have contracted the disease by contagion, without there being any inherited field for it. Then, salt rubs, all over the body, followed by a cool or cold douche or plunge of from one to five minutes duration, and then by a coarse towel friction, assist materially in stimulating the circulation and contribute to the well-being of the sufferer. These should be administered morning or evening.

Massage properly applied is another treatment of much utility, particularly in cases where there is indolence and a disposition to avoid exercise, even though the strength is sufficient to warrant it.

Dietetics are also of very great importance. Generally speaking the diet of consumptives should consist largely of animal albuminoids and heat producers of the most appetizing and nutritious character, the most easily digested and in the smallest bulk. While vegetable albumin is good, animal foods seem to be the most suitable, and among these tender beef, broiled, roasted or boiled, stands, in the order named, preeminent. Lamb, chicken and game come next. Fresh fish is also good. Vegetables that are agreeable to the patient and do not disturb digestion should be allowed as part of the diet, but not in sufficient quantity to appease hunger or supplant meats. So it is with sugars and fruits, the latter being preferable. Milk, cream and butter are advisable, if well tolerated. In case of poor appetite, the whites of two to half a dozen eggs, one to three or four times a day, at meals or between meals, constitute an excellent diet, supplying as it does, a large amount of albumin in a small bulk, usually digestible even by an impaired stomach. These may be given raw or in milk shakes or in the form of punches with a small amount of good sherry wine. Made dishes, fried articles of food, should be avoided. The excessive use of alcoholic stimulants is likewise contra-indicated, and so is tobacco.

SPECIAL TREATMENT.

First in line is the specific treatment; that form of therapeusis which aims to set interference in the way of microbic development. It may consist of prophylactic measures of the vaccinating order, or treatment by the action of immunizing and curative principles, based on the laws underlying immunity and recovery from infections. As vaccinating agents, the various forms of tuberculin may be used. Being poisonous principles of the germ of the disease, their effect is limited to the production of a mild kind of tolerance of the consumption germ, by the system of the being inoculated. Consequently, it is only in the very earliest moment of suspicion of tuberculosis that one may expect a cure by the use of such a preparation. Antitubercle serum, on the contrary, being the product with which nature herself often cures tuberculosis without the guidance of the human hand, may be used in all stages with perfect propriety and safety and with the assurance of at least having done one's duty in the application of medicine. As said before, it is in the earliest stages that the disease can be more readily arrested, but being an antitoxin it is applicable in all stages and under all circumstances, except the very rare exceptions in which heart disease or other idiosyncrasies exist, which preclude the hypodermic injection of albuminoids or salty preparations, and sometimes even of water.

In cases of pure tuberculosis, anti-tubercle serum may be administered hypodermically, in doses ranging from 5 to 6 ms. daily, 30 being the average maximum dose. The place of injection, when they are to be continued for some time, should be a locality where a heavy fold of the skin can be most easily lifted and the hypodermic needle plunged most deeply into the connecting tissue. I find the area in the back, towards the side, most suitable. See Fig. 1.

The untoward effects of serum injections are very uncommon, particularly if one is careful not to push injections too rapidly and in too large doses from the first. Occasionally, a local swelling occurs which may be reduced by the ordinary methods for such conditions. If precaution has been taken to disenfect the skin thoroughly at the point of injection, by washing the locality and then rubbing it with alcohol, or preferably formaldehyde, there is little chance of producing a swelling due to microbes, providing that the syringe and needle be thoroughly clean and free from germs of any kind. The kind of syringe that appears in Fig. 2 is most suitable. It is easily disinfected, is graduated with both systems; its needles are not so large as those of most instruments and therefore cause less pain. The serum itself is absolutely sterile. No one need fear infectious injury from that source, unless by serious carelessness germs are allowed to contaminate it.

Infrequently symptoms of arthritis develop, which resemble very much the ordinary symptoms of rheumatism and which subside after suspending injections for a few days, and under the treatment for rheumatism. The occurrence of urticaria and other skin eruptions is not uncommon, and usually avoidable by progressive doses.

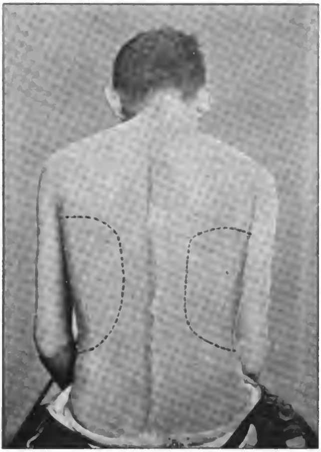

Figure 1.

The most striking, peculiar and perhaps most alarming of all the untoward symptoms of sero-therapy in any disease, is the strange and sudden interference with the circulation, manifested by dizziness, almost immediate cyanosis, and sometimes, more or less serious pain along the spinal cord, from the point of injection downward, including the nerve courses of the lower limbs, occasionally producing nausea and pain in the stomach. Sometimes these manifestations are followed by rigor. Fortunately, these results are exceedingly rare and never have proved fatal. Over one hundred thousand injections of serum antitubercle (Paquin) are recorded without a serious result. In such cases, I usually discontinue hypodermic medication and use instead rectal injections with special syringe, Fig. 3, which gives as good results in many cases, although it requires usually a larger dose. As treatment of these effects, I prescribe nitrate of strychnia, hypodermically.

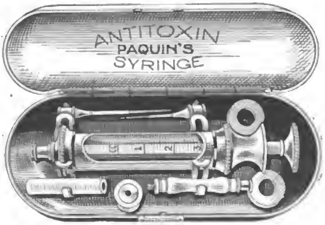

Figure 2.

In mixed infections, particularly where the germs of pus predominate and where the expectoration is largely made up of pus and broken down tissue, I use the anti-streptococcus serum as accessory treatment. I produce this serum under the same principle that underlies the production of all other antitoxins, namely, by the immunization of the horse, by saturating injections of the toxins and germ substance of the streptococcus. This is done by the method known as Marmorek's, somewhat improved. This serum and the anti-tubercle serum may be mixed or given alternately on alternate days.

As to internal medication, it must depend wholly on the existing conditions. In anemia and other conditions suggesting feebleness of the nervous system and circulation, proper reconstructive blood tonics and nerve stimulants, such as pepto-mangan and nitrate of strychnia, are desirable. As to cough, unless it is very aggravating and prevents sleep to a serious degree, I never use opiates. I usually administer, when absolutely needed, codein and terpinhydrate.

It has been suggested that alteratives be used to assist in arresting the breaking down of tissue and glandular suppuration, etc., as is done in the treatment of syphilis. For that purpose, I have found a solution of iodin properly mixed with glycerin and some of the halogen salts, very beneficial. Iodin is credited, indeed, with having cured tuberculosis. The iodides are not good. They seem to destroy red blood corpuscles.

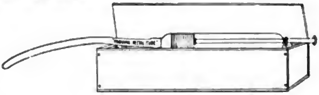

Figure 3.

As to inhalations, they should never be of an irritant character and, in fact, one should be very careful in their administration. In the early stages of tuberculosis most inhalations produce an irritation of the bronchi which is followed by a secretion that offers a good nidus for the development of germs. The inhaling ingredients containing the essence of pine needles, benzoin and such essences as are not irritant and are of a balsamic character, are most suitable. In cases with cavities, inhalations containing formaldehyde, are useful as disinfectants.

Electricity is also prescribed in tuberculosis. Both the galvanic and faradic currents have been used. The galvanic current is said to act by direct chemic action through the diseased organs, the poles being so placed as to pass the current through the affected parts. The benefits of this treatment are problematical, though sometimes they seem to be favorable. The faradic current is applied in a general way, as a stimulant of the general system.

Of recent date, so-called medicated electricity has been used in tuberculosis. It consists of treating the diseased portions by the application of the galvanic current with poles dipped in certain drugs.

Iodin has been chiefly used for this purpose, and it is said that the current carries with it through the diseased organs principles which tend to arrest the progress of tuberculosis.

In closing, I wish to draw your attention to an exceedingly important point. It is, that most every physician expects too much of sero-therapy in tuberculosis. I have never made extravagant claims for it. It can not perform miracles and should be used early. It is neither just to the patient nor to the treatment to apply it as a last resort, when everything else has failed and the condition of the patient is such that doom stares him in the face.

REPORT ON OXYTUBERCULIN IN THE TREATMENT OF TUBERCULOSIS.

BY J. O. HIRSCHFELDER, M.D.
SAN FRANCISCO, CAL.

SAN FRANCISCO, Nov. 20, 1897.

To the Editor:—I send you herewith a report on Dr. Hirschfelder's oxytuberculin, together with his notes upon the cases examined, which we hope you will publish in full in the JOURNAL. We are convinced of its efficacy and value, and urge its extended use. You will observe that it is not in any sense a secret nostrum, but has been placed legitimately before the profession. Yours truly, HENRY GIBBONS, JR., M.D.

Since the address delivered before the California State Medical Society in April, 1897, upon "Oxytuberculin" the investigations described therein have been continued both in the bacteriologic and clinical departments.

The results that had been obtained up to that time have been confirmed by further observations under the scrutiny of many of my medical brethren.

The laboratory experiments proving the inhibitory action of the oxytuberculin upon the bacilli tuberculosis have been repeated a great number of times with different modifications, but all teaching beyond doubt the certainty of the doctrine that oxytuberculin, even when greatly diluted with the culture medium most favorable for the germ, will prevent its growth. In all, forty-one series, of such culture experiments have been made by me and watched by my colleagues.

Continued treatment of many of the patients whose cases were reported at that meeting have shown that some of them have become entirely or nearly well, many have become much improved, while a few have grown worse or have died. A table of all of these cases, as well as of such as have begun treatment since that time, will be herein reported.

Believing it the duty of Cooper Medical College to investigate the value of oxytuberculin, the faculty of that institution appointed a committee for that purpose, consisting of most of the professors of that institution.

October 24, after the committee had carefully inspected the laboratory evidence, the cases whose histories will be reported in detail in this paper were presented in person to this committee together with stained slides of the sputa prepared before, during and after the treatment. The cases were carefully investigated by the committee in every direction, physical examination of the chest and laryngoscopic examination of the throat being made where it was found necessary.

At the conclusion of this investigation at which a number of medical gentlemen not connected with the college were present and who participated in its deliberations, it was decided that the committee fully endorses the value of oxytuberculin, but desires to formulate its verbal approval in a lengthy report which shall be presented at the next faculty meeting, to become a matter of permanent record.

It was stated to the committee that I did not underestimate the value of experiments conducted on animals, but that lack of facilities prevented me from conducting these in such a manner that their evidence, positive or negative, would be indubitable.

I stated that I considered it my duty to present all evidence collected, whether it be favorable or unfavorable, that it would not be proper to make a number of animal experiments and to select from these such only as gave favorable results, omitting others because the conditions under which they might have been performed were not such as to exclude accidents.

It has been my custom not to omit any observations that I have made bearing upon the subject, however unfavorable to my method the conditions may have been.

I stated that under the circumstances I deemed it wise not to enter upon the field of animal experiments, but to leave that department to those scientists who might be more favorably equipped for such researches.

The following are the cases that were presented to the committe:

Case 1.—F. A. A., merchant, aged 44; Jan. 15, 1896. No family history of phthisis. His wife died of tuberculosis last October, at which time he was subject to severe mental strain. For the past year he has been troubled with insomnia. For the past twenty years he has had occasional cough, with morning expectoration. Last October patient expectorated ʒss of pure blood. During the past six weeks the cough has been worse; he has lost eleven pounds in weight and has had one night sweat. The rectal temperature varies from 99.2 to 100.4 degrees. Examination showed patient to be a fairly well nourished, very pale individual. Head shows no peculiarity. Cervical glands are slightly enlarged; the thorax is long, broad, well arched and deep; the right side is slightly flatter than the left; the right supraclavicular region is slightly sunken; both sides move equally in respiration; there is a slight dulness of the right apex, with faint bronchial respiration and a few râles; the area of cardiac dulness and heart tones is normal; the liver is 10 centimeters and spleen is not enlarged; the urine is normal, the spirometer test shows 3160–3230 c.c., and the hemoglobin 70 per cent. (Gowers' hemoglobinometer); the sputum contains large numbers of bacilli of tuberculosis; his weight is 153½ He was injected with oxytuberculin in doses of 5 c.c daily, and on January 30, that is, two weeks after the treatment had been begun, he had already much improved, his appetite being better and the patient feeling stronger. His cough was much less and the expectoration about one-third of what it had been before. His weight was 155, the hemoglobin 90 per cent.; at one examination no tubercular bacilli were found in the sputum. February 27 his weight had increased to 164 pounds and the spirometer showed 3260–3380 c.c. At four examinations of the sputum during the month no bacilli tuberculosis were found, and on one occasion only a few. For fifteen days previous to February 29 no expectoration had occurred and the patient felt much stronger. In March the evening rectal temperature reached only to 99.6, and on one occasion he coughed, raising a small quantity of phlegm, which contained a few bacilli. March 31 and April 20 no bacilli were found. May 23 he had a chill and the spleen was found to be enlarged. For this he was given quinin for a while, that being the only medicine he had received during the whole course of the treatment. June 4 was discharged cured, there having been neither cough nor expectoration since April 20. The physical examination made by me and by Professor Kerr of the Medical Department of the University of California showed absolutely normal condition of the lung, no dulness whatsoever being present. The patient returned to his work, has gained further in weight and at the present time feels and looks perfectly well, and has remained so continuously since he was discharged from treatment on April 20, 1895. His present weight is 174 pounds.

Case 2.—Mrs. E. G., age 30, student. June 9, 1896. No family history of phthisis. Patient was well until two years ago when she had la grippe with bronchitis; since then she has been coughing. She went to Phoenix, Ariz., used antiphthisin and gained eighteen pounds. During this time the cough continued and bacilli had always been present in the sputum. Two weeks ago patient had an attack of croup. The temperature rose to 103 and remained there for four days.

Physical examination.—Patient is a well-developed, well-nourished, excessively pale individual; thorax moderately long, broad, well arched and moderately deep; dulness of the right apex posteriorly to the second dorsal vertebra; dulness of the left apex posteriorly to the first dorsal vertebra; dulness of both apices anteriorly to below the clavicle; bronchial inspiration and expiration of both apices loudest upon the right side; few consonant râles; area of cardial dulness normal, tones clear; liver not enlarged; spleen extends to the anterior axillary line; pulse feeble; spirometer 2,000 c.c.; hemoglobin 65 per cent. (Gowers); weight 155 pounds; large number of bacilli in the sputum; temperature normal. Injections of 5 c.c. daily were made until July 27. June 16, appetite decidedly better; 20, able to swim further than she had swam in a year; 27, looks and feels better, cough and expectoration less, weight 156½ pounds; July 3, very few bacilli; 20, no dulness of the lungs, vesicular murmur over the left apex, respiratory murmur is harsh over the right apex; 22, 5 mm. of sputum, very few bacilli; 27, weight 159 pounds, spirometer 2350 c.c.; hemoglobin 70 per cent., began with 10 c.c.; August 2, weight 159½; 8, weight 161½; 11, walked two miles, weight 162; September 17, raised small quantity of mucus, no bacilli; 30, weight, 166; October 7, few bacilli; 9, weight 165½; November 7, no bacilli, weight 167; 21, weight 168½; 28, few bacilli, weight 165; December 9, few bacilli; 23, weight 165, injected 30 c.c.; 29 expectorated for the first time in six weeks (2 minims), few bacilli; January 27, weight 162½, few bacilli; February 5, injected 20 c.c.; 15, no bacilli, 5 m. sputum; March 1, 10 c.c., weight 162½; April 6, no bacilli; 7, no dulness of the lungs, murmur vesicular, weight 163¼; October 20, no expectoration for many months, looks and feels well, both sides of the thorax move equally, no dulness of the lungs, murmur vesicular.

Dr. Rigdon reported at the meeting that he had examined Mrs. G. before treatment had begun and that a large number of bacilli had been present. He now found none. Both he and Dr. Farnum examined the patient before the committee and pronounced her perfectly well.

Case 3.—H. F. M., age 28, reporter; May 28, 1897. Paternal grandparents and two paternal aunts died of phthisis. Father had some lung trouble between 25 and 35. Well as a boy. At 20 weighed 196. Fall of 1890 and spring of 1891 had two attacks of pleurisy. In the fall of 1892 threatened with pneumonia. Was nearly salivated with mercury. Was in bed one week. Falls of 1893 and 1894 had two severe attacks of throat trouble, had cough for a week. In spring of 1896 had what was called pneumonia. In fall of 1896 had a cold, coughed and had pain in chest. Weight 168 pounds. In April 1897 bacilli were found in the sputum by Dr. Riley. Had cough, expectoration and night sweats. Weight 155. Coughed blood one week ago. Patient is a fairly developed, moderately well-nourished, pale individual; cervical glands slighty enlarged; thorax long, moderately broad, fairly arched, deep; flatness of the left apex posteriorly to the first dorsal vertebra of the right to the second dorsal vertebra; both anteriorly to and including the clavicle; bronchial inspiration and expiration of both apices; May 30, temperature, A.M., 98.5; P.M., 98.2. May 31, temperature, A.M., 98.2; P.M., 99.6; injected 1 mg. tuberculin (Koch); bacilli found in specimen made by Dr. Riley on March 27. June 1, temperature, 8 A.M., 98.2; 10, 98; 12 M., 98.4; 1 P.M., 99.2; 8:15, 99.2; 9 A.M., 99.4; injected 3 mg. tuberculin (Koch). June 2, temperature, 1 A.M., 99.4; 8, 98.4; 9, 98.4; 6:45 P.M., 100.6; 7:45, 100.6; 9, 100.4; 11, 100; has headache; June 3, temperature, 8 A.M., 98.6; 10, 98.6 injected 5 mg. tuberculin (Koch); 6 P.M., 101.2; 7, 100.8; 8, 100.6; 9, 100.2; 10, 100. June 4, temperature, 8 A.M., 99.2; 9:45, 99.6; P.M., 99.6; dulness more extensive and more intense; bronchial respiration is more evident; temperature normal; injected 5 c.c. oxytuberculin. June 5, feels better; injected 10 c.c. June 11, temperature 98.8 to 101. June 19, injected 20 c.c. June 22, no cough for a week; injected 10 c.c. July 9, injected 20 c.c. July 19, cough slight; weight 154¾. July 20, took dilute sulphuric acid by mistake. October 11, injected 10 c.c. October 22, no dulness of the lungs, murmur vesicular; weight 156½; feels well.

Case 4.—H. P., age 40, minister; May 6, 1897. Father died of miner's consumption. Well as a boy. For the past few summers patient has had attacks of diarrhea. Patient is a moderately developed, poorly nourished, pale individual; thorax long, broad, flat, shallow; both supra-clavicular fossæ sunken; slight dulness of the uppermost portion of the right apex; bronchial respiration of both apices, more marked upon the right side; heart normal; liver and spleen not enlarged; no bacilli in the sputum.

Injected 1 mg. tuberculin (Koch). May 27, 8 P.M., temperature 97.2; 9 A.M., 97.8; 10, 97.2. May 28, 6 A.M., temperature 97.6; 7, 95.2; 9, 97.8; 10, 96.6; 11, 96.6; 12 M., 98; 1 P.M., 99.2; 2, 98.6; 3, 99.6; 6, 99.8; 8, 101.2. Injected 3 mg. tuberculin (Koch). May 29, 3:30 A.M., temperature 101.4; 6:30, 100; 8, 99.8; 9, 100.2; 3 P.M., 101.4; 8:30, 101.4; 9:30, 100.2. Dulness of the right apex is more pronounced than it was and a dulness is found in the uppermost portion of the left apex, bronchial respiration is louder. May 30, 7 A.M., temperature 100.4; 8 100; 10, 98; 2 P.M., 99; 4, 99.8; 11, 98.8. May 31, 6:30 A.M., 98.2; 10, 97; 12 M., 97.8; 3 P.M., 99; 4, 99.2; 7, 98.6. Injected 6 mg. tuberculin (Koch). June 1, 6 A.M., temperature 99.4; 7, 99.6; 8, 99.6; 9, 101; 10:30, 101.4; 12 M., 102; 1:30 P.M., 102.4; 2:30, 102.2; 3, 102.4. 7, 102.6; 9, 102.2. Flatness of the left apex posteriorly to the first dorsal vertebra; flatness of the right apex posteriorly to the second dorsal vertebra. Loud bronchial respiration of both apices. June 2, 7:30 A.M., temperature 100.8; 8:30, 100.8; 9:30, 100.8; 11, 100.6; 12 M. 100.6; 2:30 P.M., 100.2; 3:30, 100.8; 8:30, 99.6; 10, 98.8. Injected 5 c.c. of oxytuberculin. June 3, 7 A.M., 99; 12 M., 98.4; 2 P.M., 99; 3:30, 98.5. 4:30, 98.9; 9, 99.1; 11, 100.6. Injected 10 c.c. Feels much better. Bacilli found in the sputum. June 4, morning 98.8, afternoon 98. June 5, cough and expectoration much better, feels better. June 7, morning 98.5, afternoon 98.4. Diarrhea better. June 11, morning 101, afternoon 102. Has tonsillitis; gargle ordered. June 13, morning 101.6, afternoon 103. June 14, morning 98, afternoon 98.6. June 19, feels well, no diarrhea. June 21–22, night sweats. July 6, injected 20 c.c. July 20, has diarrhea. August 13, has diarrhea still, ordered creta. August 14, diarrhea is much better. August 23, diarrhea is worse; ordered pulv. opii, plumbi acet. and tannin, each .065 gram three times a day. September 23, no diarrhea, temperature normal. October 1, no cough or expectoration. October 21, patient feels perfectly well. Examination of the chest shows absolutely normal conditions. No bacilli in the very small quantity of sputum raised.

Case 5.—T. O. P., age 25, April 23, 1897. No heredity. Began to cough in June, 1895; several weeks later had a slight hemorrhage. The cough and expectoration increased and were attended by fever, night sweats and loss of strength. He went to Arizona and improved, but since then the old trouble has continued. Bacilli found in 1893 by Dr. Frey of Washington. Patient is fairly developed, moderately well nourished. Thorax moderately long, broad, well arched, deep. Dulness of both to the first dorsal vertebra anteriorly to the clavicle; faint bronchial respiration of both apices; heart normal; liver and spleen not enlarged; weight 142½ pounds; hemoglobin 70 per cent. (Gowers); sputum contains a moderate number of bacilli; temperature, morning 99.1 to 102. Injected 10 c.c. oxytuberculin. May 27, temperature normal. July 6, feels better; 20 c.c. injected. August 11, small amount of mucus, no bacilli. September 23, 10 c.c. October 11, no bacilli, small amount of mucus. October 19, no dulness of the lung, murmur vesicular. October 22, Weight 142½ pounds.

Case 6.—Mrs. C. H., age 31, May 13, 1897. Maternal grandfather and one half sister died of phthisis. Had the usual diseases of childhood. Eight years ago had a hemorrhage; this was followed by a morning cough which persisted. Four years ago had a second hemorrhage and another three months ago. For the past two months had short breath, even while at rest, the cough and expectoration have been worse and she has had night sweats. Patient is a moderately developed and nourished individual; thorax moderately long, moderately broad, well arched, moderately deep; left side moves decidedly more than the right; dulness of the right apex posteriorly to the second dorsal vertebra, of the left to the first dorsal vertebra; dulness of the right apex anteriorly to the clavicle, of the left to 2 cm. above the clavicle; bronchial respiration of the right apex faint, bronchial of the left; râles heard throughout the right lung; area of cardiac dulness normal, tones clear; liver not enlarged; spleen decidedly enlarged; no abdominal tumor; abdomen not distended; urine normal; hemoglobin 60 per cent. (G.); weight in health 145 pounds, at present 129½; moderate number of bacilli; temperature, morning, 99.6, afternoon 100. Injected 5 c.c. oxytuberculin. May 19, injected 10 c.c. May 26, temperature morning 100.8, afternoon 98.8. Expectoration less. June 1, morning 99, afternoon 101. June 2, injected 20 c.c. June 5, morning 98.6, afternoon 101. June 7, weight 128½ pounds. June 16, coughs less and feels better. June 17, weight 125½ pounds. June 30, walked two miles. July 7, weight 127½ pounds. July 8, hardly coughed. July 19, very few bacilli, temperature normal. August 17, trace of sputum, no bacilli. October 20, no dulness of the lung, murmur vesicular (confirmed by Dr. W. M. Thorne).

Case 7.—Miss N. R., aged 22, Oct. 2, 1895. Two cousins on the maternal side died of phthisis, it having been acquired from the father's side. Had the usual diseases of childhood. One year ago caught cold and has been coughing since then. Since April the cough has been worse and been attended by expectoration. The voice was clear formerly, at present it is husky.

Physical examination.—Ordinary weight 141 pounds, in July 124, on July 8, 133, September 24 145; large number of bacilli; spirometer 1700 c.c.; hemoglobin 60 per cent. (G.) Patient is a well developed, well nourished girl; cervical glands not enlarged; thorax long, broad, moderately arched, moderartely deep; right side moves slightly less than the left, is flatter than the left; flatness of the right apex posteriorly to the second dorsal vertebra, of the left to the vertebral prominence; flatness of the right apex anteriorly to the first interspace, of the left in its uppermost portion; bronchial inspiration and expiration of both apices, few râles of the right; area of cardiac dulness normal, tones clear; liver and spleen not enlarged; weight 139 pounds. Injected 5 c.c. oxytuberculin; temperature normal. October 14, appetite much better, cough less. October 15, injected 10 c.c. October 20, weight 141½ pounds. November 7, weight 143½. November 16, no expectoration for a week. November 21, weight 144½. November 30, no expectoration in three weeks. December 7, no cough in twenty-four hours. December 11, two sides of chest appear the same, no sinking of the supraclavicular fossæ, two sides move equally, no dulness of the lungs, pitch upon the right side is slightly higher, expiration slightly harder. December 12, 20 c.c. injected. January 20, no bacilli. March 17, 10 c.c. injected. March 24, raised sputum for the first time since the last note, contains a few bacilli. June 29, 10 c.c. injected. October 11, both sides move equally, no dulness of the lungs, murmur vesicular.

Case 8.—Miss S. D., age 22, April 2, 1896. Sister died of phthisis. Patient was well until two years ago, when she had a pulmonary hemorrhage. This was followed by a cough which persisted. Last Thanksgiving day had another severe hemorrhage; since then the cough has been worse and has been attended with expectoration, night sweats and dyspnea; Last Monday had another hemorrhage.

Physical examination.—Patient is fairly developed, moderately well nourished, pale, slightly cyanotic; cervical glands slightly enlarged; thorax long, moderately broad, fairly arched, moderately deep, slight scoliosis; left side moves less than the right; flatness of both apices posteriorly to the first dorsal vertebra; flatness of both apices anteriorly to the clavicle; bronchial inspiration and expiration of both apices with consonant râles; area of cardiac dulness normal, tones clear; liver and spleen not enlarged; spirometer 600 c.c.; hemoglobin 75 per cent. (G.); urine normal; bacilli in the sputum; average morning temperature 99.4, evening 100.5. April 13, weight 122 pounds. May, 1896, average morning temperature 98.5, evening 99. May 4, weight 120¾. May 28, cough and expectoration increased. June, 1896, average morning temperature 98.5, evening 99. June 9, no bacilli, feels stronger. June 11, has not expectorated for three days, weight 118¾. June 18, weight 119. June 28, weight 119, no cough or expectoration. July 1, is able to work, little cough, weight 119½. July 13, weight 117¾. July 21, working, feels well; 5 c.c. injected. July 28, weight 118; 10 c.c. injected. August 3, weight 117. August 17, spirometer 1900 c.c., hemoglobin 75 per cent.; slight depression of the left clavicular region, none of the right; two sides move equally on respiration; at the uppermost portion of the right apex the pitch is higher than the left, but no dulness can be detected; respiratory murmur vesicular, expiration harsher than at the left apex; weight 116½. August 19, weight 118. August 27, no appetite, ordered strychnia .0027 gram three times a day. September 8, raised 1 c.c. mucus, the first in three days. November 2, no bacilli, has a little cough and expectoration. November 16, weight 113. December 1, 20 c.c. injected. Jan. 12, 1897, has pain in the chest. February 2, no expectoration for a month, weight 112. February 18, 10 c.c. injected. March 25, weight 113¼. April 2, no expectoration in three months. May 15, comes every other day. June 30, comes once a week. October 20, no expectoration for many months, two sides move equally, no dulness of the lung, murmur vesicular.

Case 9.—M. L., age 23, school teacher; Dec. 12, 1896. Mother and paternal uncle died of phthisis. Had the usual diseases of childhood. At 14 caught cold. Since then has coughed at intervals. Has shortness of breath on exertion and has had night sweats lately, period occurs every three weeks.

Usual weight 126 pounds, three months ago 117. Patient is well developed and fairly nourished; cervical glands very slightly enlarged; thorax long, moderately broad, moderately arched, moderately deep; flatness of both apices to the first dorsal vertebra, anteriorly of both to below the clavicle; bronchial respiration and consonant râles of both apices; throughout both lungs râles are heard; area of cardiac dulness to second rib, median line of the sternum to fifth, intercostal space to mammillary line; a murmur is heard at the apex that disappears during inspiration; liver and spleen not enlarged (examination confirmed by Professor Kerr, Professor Clinical Medicine, University of California, Medical Department); spirometer 1250; weight 117½; arytenoid cartilages slightly swollen; no bacilli in the sputum; temperature 99.8. Injected 10 c.c. January 9, injected 20 c.c. January 12, weight 119½. January 13, afternoon temperature 101. February 8, feels well, no cough, no expectoration; stop injection. April 10, has continued to improve, feels better than she has felt in two years, weight 121¼; two sides of chest move equally; no dulness of the lungs, murmur vesicular. October 4, feels well, has had a little inflammation in the throat below the surface of tonsil, scarified it and ordered peroxid, 1 to 6. October 22, weight 123¼. Patient looks and feels perfectly well, no dulness of the lungs, murmur vesicular. Dr. Barkan examined patient during the meeting and reported normal oral cavity. Epiglottis and vocal chords, true and false, healthy in color and texture; arytenoid cartilage and interarytenoid space normal. Patient speaks clearly and attacks the tone well, no secretion.

Case 10.—Mrs. G. F. C., age 19; Aug. 10, 1897. Father had phthisis. Patient was well, as a girl, mature at 14, has not been strong since, coughed at that time and at times since. Coughed up blood several times last summer, the last time since then having been last week. Patient has been getting short of breath for the last three months. Weight last spring 130 pounds, January, 1897, 118, present weight 109. Patient is well developed, moderately nourished, pale; thorax long, moderately broad, fairly arched, moderately deep; both supra- and infra clavicular fossæ sunken; left side moves slightly less than the right; flatness of both apices posteriorly to the second dorsal vertebra, of left anteriorly to the second rib, of right anteriorly to below the clavicle; bronchial respiration of the right apex, amphoric respiration of the left apex with swishing râles; area of cardiac dulness normal, tones clear; liver and spleen not enlarged; moderately large number of bacilli; temperature morning 99.2, afternoon 102. Oxytuberculin was injected daily. August 16, cough less. August 19, feels better. August 21, stronger, cough and expectoration less, temperature normal. August 23, hemoglobin 65 per cent. (G.). August 28, cough very much less, expectoration less and feels stronger. August 30, feels very well. September 16, appetite better, moderate number of bacilli. October 16, appetite very good, weight 108¼. October 18, two sides move equally, dulness of both apices posteriorly to the first dorsal vertebra, right anteriorly to the clavicle, of the left to the two cm. below clavicle, bronchial respiration of the right apex, amphoric of the left, few râles. An examination made by the committee confirmed the very marked improvement that had been made in her case.

Case 11.—T. H. W., age 37; June 16, 1896. No heredity. In 1877 had chancroid; has had gonorrhea; been using cigarettes for thirty years; used alcohol to excess; has been coughing for a long time, this has grown worse during the past year, at times he has raised blood-tinged mucus; two weeks ago had a profuse hemorrhage and has had night sweats for many years. Patient is poorly developed, illy nourished, color moderately good, cervical glands not enlarged; thorax long, moderately broad and well arched, moderately deep; two sides move equally; dulness of both apices posteriorly to the third dorsal vertebra, right anteriorly to the second rib, of the left to and including the clavicle; loud bronchial respiration of both apices with consonant râles, mucus râles over other parts of the lungs; area of cardiac dulness normal, tones clear; liver 15 cm. Spirometer 3800 c.c., hemoglobin 70 per cent., urine contains pus; large number of bacilli in the sputum. June 18, Professor Kerr confirmed the examination; weight 145¼ pounds; temperature morning 98, afternoon 101.6. Injections of oxytuberculin were instituted and very soon improvement occurred. June 26 it was noted that the cough was better than it had been in months, and by July 5 the temperature became normal and has remained so to the present. August 10, a few bacilli were found in the sputum. September 23, the patient expectorated a little blood, but otherwise no increase of unpleasant symptoms, so that by December 17 only 4 c.c. of jelly-like mucus was expectorated in the twenty four hours. December 29, no bacilli could be found in the sputum. January 19, patient complained of rheumatism in the shoulders, for which salicylate of soda and hot baths were used. By January 30 he was entirely recovered from this slight ailment. March 2, a very small number of bacilli were found in the sputum. March 18 he caught cold but had no rise of temperature, coughed up a very small amount of blood, in which bacilli were found. April 2, no bacilli were found in the sputum, nor have any been found since that time. At the present time the patient is perfectly well and strong, the most careful examination made fails to reveal the slightest sign of the disease of the lung, either to me or any of the six other physicians who have examined him.

Case 12.—Miss G. P., age 18. Has been having cough for one year with profuse expectoration, night sweats and hemorrhages. First presented herself July 3, 1896. Weight 104¼ pounds. Patient is poorly developed, moderately well nourished, very pale; thorax long, moderately broad, flat, shallow; left side decidedly flatter than the right, moves very little on respiration; dulness on right side to first dorsal vertebra, anteriorly to and including the clavicle; dulness of the left apex posteriorly to the sixth dorsal vertebra, anteriorly to the second rib; bronchial respiration of the right apex and amphoric respiration of the left; temperature morning 102.5, afternoon 105. Treatment with injections of oxytuberculin was begun September 30. Weight 122¾ pounds. Temperature after October 1 normal with an occasional rise of temperature to 101. November 4, weight 125¾. November 14, very few bacilli present. November 21, weight 127½. March 4, patient took cold and went to the country, returning on the 25th in a very much worse condition than she had been since she first presented herself, weight being 112¾ and the temperature ranging as high as 102. Treatment of oxytuberculin was again instituted and improvement began. April 9 a moderate number of bacilli tuberculosis were found in the sputum. By April 24 the temperature became normal and has remained so since. When presented to the committee it was found that the left side of the thorax was slightly flatter than the right. The left side moves slightly less than the right in the upper part. No dulness whatsoever of the right lung. Respiration vesicular. In the left lung dulness was found posteriorly to the first dorsal vertebra and anteriorly to the second rib, amphoric respiration was heard in this region, but very few râles. Her weight was 125 pounds, and no bacilli were found in the sputum.

Case 13.—C. H. W. Was sent to me Jan. 22, 1897, from the Throat Clinic of the Cooper Medical College with the diagnosis of acute tuberculosis laryngitis, with the following report:

Left cord does not move. Cartilaginous portion narrow, membranous portion rounded and pearly white. Left arytenoid cartilage somewhat edematous, edema of the arytenoid having much increased in the last few days.

Patient was found to be moderately developed, poorly nourished, somewhat cyanotic, with dulness of the right apex to the third dorsal vertebra, of the left to the second; anteriorly of the right to the second rib, of the left to the first intercostal space. Bronchial respiration and râles of both apices, amphoric respiration below the right clavicular region; large number of bacilli in the sputum. Temperature, afternoon, 101.2; weight 129½ pounds.

Patient had profuse expectorations, was dyspneic and had numerous bacilli in sputum.

Administration of oxytuberculin was instituted January 22, and a few days later he reported that he slept better and felt better; temperature, P.M., 100.4. From that time to the present the temperature has never risen above the normal. February 2, he had a hemorrhage. February 13, the laryngologic clinic reported the larynx better, and from that time on a continued improvement in the condition of the larynx occurred. October 21, a large number of bacilli were found in the sputum. Dulness of the left apex was found to the first dorsal vertebra; bronchial respiration; no dulness of the right was found. There was very little cough, the expectoration being only one-half as much as it had been when he first presented himself. Patient had the rosy appearance of health and had no shortness of breath. His weight, however, was only 128½ pounds.

An examination by Professor Barkan made at the time of the meeting gave the following report: Epiglottis healthy, true and false vocal cords of good color and texture. Left cord does not move as well as right toward the medium line of phonation. Left arytenoid slightly thickened. Voice clear.

Case 14.—J. P. A.; was admitted to the City and County Hospital July 15, with the following history: He had been well with the exception of stomach and bladder trouble until one week ago, when he suddenly became short of breath. His legs began to swell and he passed bloody urine for the same length of time. He was found to be cyanotic and dyspneic, with general anasarca. Dulness of the right apex was to the second dorsal vertebra; bronchial respiration. The sputum contained bacilli of tuberculosis in large numbers. In the bloody urine bacilli tuberculosis and a moderate quantity of albumin were found.

The case was diagnosed as acute miliary tuberculosis, but so little expectation of accomplishing anything in the case was felt that an examination of the blood for bacilli tuberculosis was, unfortunately, not made. Injections of oxytuberculin were begun and the patient rapidly improved, though high fever continued for a long time, but with the last two weeks has entirely disappeared. August 17 the patient was able to walk around the wards, and the urine was no longer bloody, nor has it been so at any time since. August 28, his weight was 133 pounds. September 25, his weight was 135. October 2, his weight was 138. October 6, after much search a few bacilli could be found in the sputum and in the urine only a trace of albumin, but no bacilli. October 19, patient became attacked with sciatica, for which he was blistered and confined to his bed. His weight on October 23 was reduced to 134 pounds.

In this case the gradual improvement had been observed by the class of medical students at Cooper Medical College, who saw him from time to time in the wards.

In the subjoined table sixteen cases that had been treated early in the course of the investigations with oxytuberculin heated only thirty hours and giving less favorable results have been omitted.

FOURTH STAGE.

No	Name.	Days Treated.	Bacilli.		Cured.	Much Improved.	Slightly Improved.	Unchanged.	Worse.	Dead.
			Before.	After.						
1	D. A. C.	172	Large	Moderate	..	..	..	1	..	..
2	C. F.	200	Large	Moderate	..	..	1	..	..	..
3	T. J.	104	Large	Not examined	..	..	..	..	..	1
4	G. A. K.	59	Large	Not examined	..	..	..	..	..	1
5	J. M.	407	Large	None	1	..	..	..	..	..
6	J. M.	365	Large	Hardly any	..	1	..	..	..	..
7	B. M.	450	Large	Very few	..	1	..	..	..	..
8	W. R. P.	59	Large	Large	..	..	..	..	..	1
9	P. P.	285	Large	Moderate	..	1	..	..	..	..
10	G. P.	296	Large	Moderate	..	1	..	..	..	..
11	D. H.	180	Large	Moderate	..	1	..	..	..	..
12	G. C.	65	Moderate	Moderate	..	1	..	..	..	..
13	H. D.	58	Small	Small	..	1	..	..	..	..
14	C. F.	77	Large	Not examined	..	..	..	1	..	..
15	J. D.	44	Large	Large	..	..	1	..	..	..
16	M. H.	47	Large	Not examined	..	..	..	..	..	1
17	Lester L.	96	Large	Not examined	..	..	..	..	1	..
18	R. L.	32	Large	Not examined	..	1	..	..	..	..
19	C. M.	112	Large	Moderate	..	1	..	..	..	..
20	J. R.	168	Large	Large	..	..	1	..	..	..
21	E. W.	68	Large	Not examined	..	..	..	..	..	1
22	C. W.	178	Large	Very few	..	1	..	..	..	..
23	J. B. M.	38	Large	Not examined	..	1	..	..	..	..
23					1	11	3	2	1	5

THIRD STAGE.

No	Name.	Days Treated.	Before.	After.	Cured.	Much Improved.	Slightly Improved.	Unchanged.	Worse.	Dead.
1	D. B.	26	Moderate	Not examined	..	..	..	1	..	..
2	S. D.	300	Large	None	1	..	..	..	..	..
3	E. E.	37	Large	Not examined	..	1	..	..	..	..
4	A. G.	126	Moderate	Large	..	1	..	..	..	..
5	F. J.	326	Large	None	..	1	..	..	..	..
6	M. L.	113	Large	Large	..	..	..	1	..	..
7	J. M.	141	Large	Hardly any	..	1	..	..	..	..
8	S. M.	461	Large	Moderate	..	1	..	..	..	..
9	A. M.	30	Large	Not examined	..	1	..	..	..	..
10	C. M.	22	Moderate	Not examined	..	..	1	..	..	..
11	R. M.	338	Large	Moderate	..	1	..	..	..	..
12	H. P.	285	Large	None	..	1	..	..	..	..
13	T. P.	33	Large	Not examined	..	..	..	1	..	..
14	L. T.	40	Moderate	Not examined	..	..	..	1	..	..
15	F. A. S.	254	Moderate	Moderate	..	..	1	..	..	..
16	C. H. W.	42	Large	Large	..	1	..	..	..	..
17	M. W.	182	Moderate	Few	..	1	..	..	..	..
18	T. H. W.	350	Large	None	1	..	..	..	..	..
19	T. M.	250	Large	Moderate	..	1	..	..	..	..
20	F. R. D.	300	Large	None	..	1	..	..	..	..
21	W. H.	280	Large	Moderate	..	1	..	..	..	..
22	M. W.	120	Small	Small	..	1	..	..	..	..
23	P. S.	40	Large	Moderate	..	1	..	..	..	..
24	J. D.	30	Large	Large	..	..	1	..	..	..
25	T. T.	80	Large	Moderate	..	1	..	..	..	..
26	H. C.	30	Large	Moderate	..	1	..	..	..	..
27	C. H.	148	Moderate	None	1	..	..	..	..	..
28	J. M.	54	Moderate	Few	..	1	..	..	..	..
29	W. W.	130	Large	Large	..	1	..	..	..	..
29					3	19	3	4	..	..

SECOND STAGE.

1	E. G.	288	Large	None	1					
2	W. M.	75	Moderate	Not examined		1				
3	N. R.	120	Large	None	1					
4	E. S.	106	Large	Moderate		1				
5	Father S.	99	Moderate	None	1					
6	V. C., 1	100	None	None	1					
7	O. V.	90	Moderate	None	1					
8	T. L.	180	Large	None		1				
9	R.W.R., 2	88	None	None		1				
10	O. P.	187	Moderate	None	1					
11	H. P.	111	Moderate	None	1					
12	W. D.	112	Few	None		1				
13	H. M.	101	Few	None	1					
14	M. P.	36	None	None		1				
14					8	6				

1 Through an oversight sputum records were not made until one month after treatment had begun.
2 Bacilli tuberculosis had been found previously by Dr. Fraser.

FIRST STAGE.

1	F. A.	134	Moderate	None	1					
2	M. L.	15	None	None	1					
3	W. Z.	305	None	None	1					
4	R. W. R	106	None	None	1					
4					4					

GENERAL SUMMARY.

Stage.	Total No. Treated.	Cured.	Much Improved.	Slightly Improved.	Unchanged.	Worse.	Died.
Fourth stage	23	1	11	3	2	1	5
Third stage	29	3	19	3	4		
Second stage	14	8	6				
First stage	4	4					
Total	70	16	36	6	6	1	5

When in this table it is stated that a patient has become well I mean that bacilli tuberculosis have been absent at repeated examinations running over a long period of time, that the patient feels well and strong, and above all that physical examination of the chest does not reveal any signs of the disease. Any case not filling all of these requirements has provisionally been classed among those who have improved. It has been my purpose to place the most stringent demands upon the treatment.

In administering the remedy needles not less than one-half inch in length have been used so that the oxytuberculin might be injected well under the skin.

443 Geary Street.

A CLINICAL STUDY OF TUBERCULOUS CASES TREATED WITH THE NEW ANTIPHTHISIC SERUM T. R.

(FORMULA OF FISCH.)

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Serum therapy has been so extensively used that scarcely a well informed person can be found who does not entertain an opinion either for or against it.

However, the principles underlying this method of medication, the nature of toxins and antitoxins, their mode of preparation, administration and action are very imperfectly understood.

A great variety of opinions are held both by the profession and the laity concerning the effects of this treatment in tuberculosis. Many of these opinions however are based upon no firmer foundation than that of prejudice.

For some time past I have used with my tuberculous patients, a serum prepared by immunizing the horse with Koch's old tuberculin. I have obtained from this product very satisfactory results in several cases.

Soon after the introduction of Koch's new "tuberculin T. R.," I tested its utility on a few well selected cases of tuberculosis. A short time later I was informed by Dr. Carl Fisch of St. Louis that he was immunizing horses with the new "tuberculin T. R.," hoping to be able to furnish a serum with more potent antitoxic properties than those possessed by the old serum. This at once appealed to me as being the most rational therapeutic agent yet proposed for the treatment of tuberculosis.

As is well known, Koch's old tuberculin contains only the toxins secreted by the bacilli. If the use of the old tuberculin on the horse could produce a serum capable of bringing about the satisfactory results which I had obtained in the cases tested by it, I felt very confident that the new "tuberculin T. R."—being a more complex toxin, containing not only the toxins secreted by the bacilli, but also those contained in the tissues of the bacilli themselves—if used to immunize the horse would produce a more complex antitoxin, which would not only be an antidote for the toxins secreted by the bacilli, but also for those contained within the substance of the germs; in other words, possessing both antitoxic and bactericidal properties.

At this time I was honored by a request from Dr. Fisch to test the new product upon a series of tuberculous cases. I accepted the invitation and commenced the work as soon as the horses were considered immunized and Dr. Fisch had tested the serum upon animals. The following report therefore is the first account giving the results obtained with this serum upon patients.

Before proceeding with the report it will probably be well to clearly define the principles underlying immunization; and, furthermore, to come to a clearer understanding of the rôle played by toxins and antitoxins in bringing about this condition.

It is the nature of toxins when administered to an animal to stimulate the organism to a greater production of antitoxins. This is known as active immunization.

On the other hand, the antitoxins produced by a healthy animal may be administered to an organism possessing a diminished supply of these antitoxins. The result thus obtained is known as passive immunization.

Moreover, since every living organism is endowed with the ability to generate protective substances known as antitoxins; yet this ability is possessed in variable degrees by different individuals, according as they are in a normal or diseased state, or according to the species to which they belong.

Therefore if the antitoxin supply of any organism becomes diminished by disease, either in quantity or quality, it has already been shown that an effort may be made to overcome this deficiency by one or the other of the foregoing methods of bringing about artificial immunization.

By the active method a toxin is used for the purpose of stimulating the organism to a greater production of antitoxins. But it will be readily seen that in weak persons this method would be simply an effort to increase the functional activity of an organism that is already overworked.

While, on the other hand, by administering antitoxins produced by a healthy or immunized animal to one deficient in these products the weaker organism will be temporarily supplied with that which it is not able to prepare for itself; and during this period instead of being stimulated to a still greater activity it will have an opportunity to rest and recuperate.

This is exactly the result which I have observed by administering the "antiphthisic serum T R." to tuberculous patients.

The following is the report of my first ten cases treated by this new serum:

Case 1.—Mrs. N., age 30, native of Kentucky.

Family history.—Sister died of tuberculosis at 20, sick two years; four months later a brother died of tuberculosis at 32, sick five years; the mother having nursed the son and daughter through their sickness showed evidence of tuberculosis a short time before their death, and died of the disease eighteen months later. Also, one aunt had tuberculosis.

Personal history.—Present trouble began four years ago. Former weight 137, lost gradually until her weight was reduced to 80, slowly improved until she reached 103 pounds. In June, 1897, a cough and expectoration commenced and she came to Colorado.

Physical condition.—Upon examination one month after arriving in Denver, I found a small area of dulness over the upper lobe of left lung with moist râles in the apex on forced inspiration; frequent pains in the lung; cough and morning expectorations; afternoon temperature $99\frac{1}{2}$; weight 110. Slept poorly, appetite moderate; weak, easily exhausted and very susceptible to cold.

Treatment.—I commenced treatment with Koch's new "tuberculin T. R." on August 6, continued for two weeks, increasing the dose from $\frac{1}{500}$ mg. to $\frac{150}{500}$ mg. At the expiration of two weeks weight reduced from 110 to $106\frac{1}{2}$ pounds. A marked reaction developed under an increasing dose in the form of a distinct chill. August 25 treatment was changed to "antiphthisic serum T. R.," commencing with $\frac{1}{3}$ c.c. The dose was slowly increased to 1 c.c. At the end of one week under the serum she had gained two and one-half pounds. Felt better and stronger and slept better.

Reaction.—Patient experienced the first reaction on the ninth day in the form of a tired feeling with an incilnation to sleep most of the time. During second week cough and expectoration ceased, appetite improved, slept better and gained two pounds. Temperature normal at the end of third week. At the expiration of six weeks of the serum treatment patient felt a constant improvement. The pain had disappeared from the lung, cough and expectoration had ceased, râles had disappeared and there was a gain of seven and one-half pounds. Patient much stronger, riding a bicycle, and was much better than for three years. Patient discharged cured. Treated with Koch's old tuberculin without a reaction. Dose never exceeded 1 c.c. Temperature never more than one degree above, but more frequently subnormal. One month after stopping treatment patient had gained two pounds and continued to improve.

BLOOD STUDY: TABLE I.[1]

Date, 1897.	S. L.	L. L.	Trans.	Phag.	Eos.
	Differential Percentages.				
August 13	20	8	2	68	2
August 21	24	13	3	53	7
September 20	32	7	0	58	3
October 4	34	6	1	56	2
November 5	27	10	0	61	2

August 6–23 gave "tuberculin T.R." August 25 to October 4 gave "antiphthisic serum T.R." Last blood examination made November 5, one month after stopping treatment.

Results.—Small lymphocytes almost double in number, also an increase in the number of eosinopilous cells and decrease in amount of cell disintegration. One month after stopping treatment the relative percentages adjusted themselves to almost normal.

Case 2.—Mr. H., age 22, single, nativity, New York.

Family history.—Father died of tuberculosis.

Personal history.—Has always been delicate. Had typhoid fever two years ago. Has been a close student for several years. Present trouble commenced last spring while in college. Began with a severe cold, pain in left lung, cough and expectoration, loss of weight and strength. Came to Colorado in June through the advice of his physician. Remained in the mountains during the summer, sleeping in a tent, living in the open air, nourished by the best of food, but under no treatment. Gained in weight, appetite improved, and in many ways felt better, but the cough and expectoration continued, and occasionally a pain in the left lung.

Physical condition.—Patient consulted me September 4. A physical examination revealed slight dulness over upper lobe of left lung, with moderate localization infiltration, and a few fine râles on forced inspiration. Temperature 98, pulse 84, weight 143 pounds.

Treatment.—Commenced the "antiphthisic serum T. R." beginning with $\frac{1}{2}$ c.c. On third day increased to $\frac{3}{4}$ c.c. Continued the latter dose for five days. During the third and fourth days temperature rose to 99, but soon dropped to normal and remained so during the month.

Reaction.—The first evidence of reaction developed at close of first week. The left axillary glands became tender and moderately enlarged, and left shoulder stiff. Patient felt tired and experienced a tendency to sleep much of the time. These effects disappeared after the third day. During the reaction the appetite was not impaired. Immediately after the reaction appeared, the cough and expectoration became less. End of second week cough and expectoration had ceased. At the close of first month patient had gained three pounds and felt stronger each day. Pain disappeared from lung, chest expansion had increased three-fourths of an inch, râles had disappeared and dull spot was clearing. Patient discharged with no evidence of the disease remaining. During the month no treatment used except the serum and lung gymnastics. Maximum dose 1 c.c. A second reaction did not appear.

BLOOD STUDY: TABLE II.

Date, 1897.	S. L.	L. L.	Trans.	Phag.	Eos
	Differential Percentages.				
September 11	17	5	1	74	3
September 18	24	9	0	60	7
September 25	27	8	0	60	5
October 2	27	9	0	60	4

Case 3.—Miss S., aged 34; nativity, New York.

Family history.—Mother died of tuberculosis at 64, sick six months; one sister at 20 sick six months; five cousins on mother's side between 20 and 30, and one aunt at 60.

Personal history.—Present trouble began four years ago. Had pleurisy in right side. Cough soon developed, accompanied by almost constant pain in right lung. Soon afterward patient came to Colorado. Former weight 114 pounds, weight on arriving in Colorado three years ago 93 pounds. Improved slightly in Colorado, but cough and pain in right lung persistently increased. Continuing very susceptible to climatic changes, and did not gain strength.

Physical condition.—Examination August 15. No râles detected in either lung. Dulness and slight consolidation over upper portion of right lung, with impaired breathing. Temperature $99\frac{4}{5}$; pulse 92. Weight 103 pounds. In connection with this case there was also well marked acne involving the face and back, which had existed since puberty without yielding to treatment.

Treatment.—Began "antiphthisic serum T. R." September 11, and continued two months. Initial dose $\frac{1}{4}$ c.c. At the end of second week was giving 1 c.c. Temperature during first week persistently remained one degree above normal, but fell to normal during second week.

Reaction.—The first reaction developed early in the second week. Axillary glands enlarged and tender on both sides. Face flushed in evening after taking the serum. Felt tired and inclined to sleep much of the time. For a few days while the reaction was most marked, shoulders were stiff much the same as after taking a cold. Following the reaction of the second week improvement was marked; slept better; appetite improved, cough and expectoration diminished; looked and felt better and strength increased. Cough ceased entirely at end of second week, and pains in lung disappeared. Appetite greatly improved. Also an unexpected evidence of improvement developed. At close of the second week the acne which had been so persistent on face and back commenced to disappear. By the end of third week the face was entirely clear and there has been no return. Patient continued to feel better and gained in strength to the close of the treatment at the end of two months; feeling better than at any time since commencement of her trouble. Lost three pounds during first month which were regained during second month. No treatment used except serum. One month after stopping treatment patient feeling well with no evidence of the disease to be found.

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[1] The following classification of leucocytes is used in this study with the approximate normal percentages for each: Small lymphocytes 26; large lymphocytes 8; transitional 1; phagocytes 64; eosinophilous 1. The percentages in the tables represent an average of 500 leucocytes.

BLOOD STUDY: TABLE III.

Date, 1897.	Differential Percentages.				
	S. L.	L. L.	Trans.	Phag.	Eos.
August 15	25	5	0	68	1
November 6	33	6	0	57	4
November 13	29	5	0	63	3
November 18	30	5	0	61	4

Case 4.—Mr. M., age 32, nativity, Ohio.

Family history.—Father died of tuberculosis at 45, sick three years. Also father's mother at 30, sick six months.

Personal history.—Present trouble commenced one year ago. Had severe pneumonia involving left lung. A cough existed previous to the pneumonia and increased afterward, accompanied by morning expectoration. Very susceptible to climatic changes. Former weight 145, present weight 133.

Physical condition.—Small dull area over central portion of left lung. Pain on pressure, also distinct rough breathing on forced inspiration, but no râles detected. No bacilli, temperature 99.4, pulse 98. This case can not be said to be one of active tuberculosis. But the family and personal histories accompanied by his physical condition justified the suspicion of a strong tuberculous predisposition which was confirmed by a blood study. I advised the patient to try the "antiphthisic serum T. R.," for the purpose of bringing about artificial immunization before he had advanced to the so-called "active stage" of the disease.

Treatment.—Commenced the serum October 16, beginning with ¼ c.c. Increased the dose from ¼ c.c. to ½ c.c. during first week with no reaction. Gained two pounds. Temperature reduced to normal. During second week dose increased to 1 c. c. Slight reaction experienced. During third and fourth weeks gave a daily dose of 2 c.c. Improvement marked. Temperature dropped to normal or subnormal. At the end of one month patient is in an excellent condition, feeling better, much stronger; cough and expectoration ceased, pain left the lung, appetite improved, gained five pounds. Patient discharged feeling better than for years.

BLOOD STUDY: TABLE IV.

Date, 1897.	Differential Percentages.				
	S. L.	L. L.	Trans.	Phag.	Eos.
October 14	21	5	0	67	7
November 6	24	4	1	64	7
November 17	25	4	0	66	5

Case 5.—Miss R.; nativity, Massachusetts.

Family history. Maternal uncle died of tuberculosis at 30, sick three months. Maternal aunt at 28, sick less than three months. Paternal grandmother has intestinal tuberculosis. Father has intestinal troubles.

Personal history.—Has always been delicate. Present trouble commenced two years ago in the form of a severe bowel trouble, which has not yielded to treatment. Very feeble endurance. Takes cold quickly, which always manifests itself in an increase of the bowel trouble. Patient also has a severe form of acne.

Physical condition. Lungs normal. No cough or expectoration. Tenderness over bowels with more or less tympanitis. Temperature 99, pulse 82, weight 116. I suspected intestinal tuberculosis and advised the "antiphthisic serum T. R."

Treatment.—Commenced October 13, with ¼ c.c., increasing the dose until 2 c.c. were given at the end of fourth week. At the end of first week temperature was reduced to normal, and during a further treatment of six weeks it fluctuated between normal and one degree below.

Reaction. At close of first week reaction was experienced in the form of a tenderness and swelling of axillary glands, stiffness in shoulders, a tired feeling and a tendency to sleep. The acne also showed improvement at the end of the first week, and at the close of six weeks had almost disappeared. The general condition of patient improved as the treatment progressed. Bowel trouble gradually improving, weight increased five pounds. Patient stronger and less susceptible to climatic changes, appetite improved, gained in strength and in every way better than for two years. Treatment continued.

BLOOD STUDY: TABLE V.

Date, 1897.	Differential Percentages.				
	S. L.	L. L.	Trans.	Phag.	Eos.
September 27	10	13	1	75	1
October 23	19	6	1	73	1
October 30	23	9	1	64	3
November 8	24	7	1	65	3
November 13	19	3	1	71	6
November 20	21	7	1	61	10

Case 6.—Mrs. F., age 24; nativity, Indiana.

Family history.—Maternal and paternal grandmothers died of tuberculosis, also a nephew at 19, sick one year, and all cousins on both sides at ages ranging between 17 and 21.

Personal history.—Present trouble developed after an attack of grippe. Fever, cough and expectoration followed. Had two slight hemorrhages. Bacilli were present. Has had cardiac weakness, occasional albuminuria, asthma and chronic bronchitis. Has spent most of her time in Colorado for several years with very little improvement.

Physical condition.—No actual lung lesion found, but general state of health feeble. Troublesome cough with very little expectoration. Much pain in lungs. Takes cold very easily, accompanied by an increase in the foregoing symptoms. Bacilli have disappeared from sputum since coming to Colorado.

Treatment.—Patient placed under the "T. R. serum" October 19, commencing with ¼ c.c. A slight reaction developed from the first dose. Dose was slowly increased. At the end of first week was giving ½ c.c. No severe reaction experienced, but several hours after giving the serum, patient felt tired and sleepy accompanied by marked flushing of the face. Invariably felt better after each reaction. End of fourth week appetite improved, slept better, gained in weight, felt better, and cough had ceased. Temperature continued throughout the month at normal or subnormal. Patient gradually improving. Feels better than for six months. Takes 1 c.c. with little reaction. Treatment continued.

BLOOD STUDY: TABLE VI.

Date, 1897.	Differential Percentages.				
	S. L.	L. L.	Trans.	Phag.	Eos.
September 29	19	12	1	66	2
October 19	30	9	1	57	3
November 13	29	11	1	55	4

Case 7.—Mr. C., attorney, aged 28, nativity Nova Scotia.

Family history.—Father died of tuberculosis at 39, sick eleven years. All cousins on the father's side died of the disease between 18 and 26.

Personal history.—Present trouble commenced with grippe in February, 1895. Previous health good but had been overworking. Cough, expectoration and night sweats commenced at this time. Returned to office after five weeks, but cough and expectoration continued. Aphonia developed and continued until the following July. During July had two hemorrhages. Examination of sputum revealed bacilli. Weight reduced from 148 to 136 pounds; came to Colorado in October, 1895. Has gained since coming to Colorado. Aphonia has disappeared, strength increased and gained in weight, but cough and expectoration continued, and often tinged with blood.

Physical condition.—Patient was examined November 1; fine râles detected in upper lobe of right lung, over which was a small area of dulness; cough troublesome, expectoration moderate in amount; bacilli present.

Treatment.—Patient commenced the "antiphthisic serum T.R." November 3. During first week increased the dose from ¼ c.c. to ½ c.c. The first reaction developed on fourth day. Felt sleepy all afternoon after taking the serum. During the remainder of the week slept the greater part of the time. By the end of the first week appetite much better than for years; felt stronger. During second week dose increased from ½ c.c. to 1 c.c. Early in the second week the axillary glands became tender and slightly enlarged; felt tired, weak and sleepy. This reaction soon disappeared and patient felt much better and stronger. During third week dose increased to 1½ c.c., very little reaction experienced; cough no less, but easier, feeling better each day; sleeping better and much stronger. Gained two pounds; pain in lungs diminishing. Treatment continued.

BLOOD STUDY: TABLE VII.

Date, 1897.	Differential Percentages.				
	S. L.	L. L.	Trans.	Phag.	Eos.
November 1	17	8	2	69	4
November 11	20	14	0	58	8
November 18	20	2	1	69	8
November 23	22	12	0	58	8

November 3 commenced the serum. Blood examination revealed the distinct characteristics of incipient tuberculosis. November 11, revealed marked improvement; the small lymphocytes showing an increase and the eosinophilous cells doubling in number.

Case 8.—Mr. H., aged 42, married, nativity Ohio.

Family history.—Two uncles and one cousin on father's side died of tuberculosis.

Personal history.—Engaged in educational work for years. A hard worker, but enjoyed good health until three years ago. For years had taken cold readily, always followed with a cough, expectoration and soreness in lungs. During spring of 1896 over-worked and health commenced to fail. Came to Colorado and consulted me for a diagnosis. Lungs revealed no evidence of tuberculosis; a blood study, however, revealed much cell disintegration and marked alteration in the relative percentages of the various types of leucocytes. I gave a diagnosis of marked tuberculous predisposition and advised patient to rest for one year and remain in Colorado. The case was reported as No. 34 in my article on "The Diagnosis of Tuberculosis from the Morphology of the Blood" (*Med. Record*, Oct. 5, 1896). Patient declined the advice given and returned East the last of August and commenced his school work. Cough and expectoration commenced the last of December; lost weight and strength and in March, 1897, broke completely down with what physicians called "pleuro-pneumonia." Confined to his room five weeks. Cough, expectoration and high fever continued. Came to Colorado the second time last July.

Physical examination.—Both lungs very serionsly involved; bacilli abundant; marked variation in daily temperature varying from from 102$\frac{1}{2}$ to 104$\frac{1}{2}$, pulse 110. Former weight 138, present weight 111. Cough troublesome, expectoration profuse, night sweats, diarrhea, extreme dyspnea, poor appetite and sleep.

Treatment.—Gave "tuberculin T.R." for one month, increasing dose from $\frac{1}{500}$ mg. to $\frac{350}{500}$ mg., with very little if any improvement during the month. Gave "antiphthisic serum T. R." during the second month. Increasing the dose from $\frac{1}{2}$ c.c. to 3 c.c; slight improvement in all symptoms except temperature and pulse; cough and expectoration less, appetite improved a little and slept better, but these were only for a short duration. During the last week of treatment I used "antistreptococcus serum" (Fisch) in connection with the "antiphthisic serum T. R.," giving each on alternate days. After the first dose of the "antistreptococcus serum" the temperature fell from 101 $\frac{3}{5}$ to 99 $\frac{1}{5}$. For three days the temperature remained between 99 and 100, being the lowest point reached for more than six months. Patient became gradually weaker, pulse more rapid and appetite less. During the two months of careful treatment patient rapidly failed. Treatment stopped. Patient returned East; lived one month.

BLOOD STUDY: TABLE VIII.

Date, 1896.	Differential Percentages.				
	S. L.	L. L.	Trans.	Phag.	Eos.
August 3.	15	12	0	71	2
July 22, 1897.	7	9	0	84	$\frac{1}{2}$
August 2.	5	4	0	91	0
August 10	6	9	0	85	$\frac{1}{4}$
August 18	10	9	0	81	0
September 14.	4	8	0	88	$\frac{1}{3}$

Case 9.—Mrs. D., age 37; nativity, Pennsylvania.

Family history.—Very good. No tuberculosis on either side.

Personal history.—Present trouble began about two years ago. Patient lived in a double house, a tuberculous patient living in the adjoining apartment. Our patient received daily visits from her neighbor who was careless about her sputum. Expectorating profusely on floors and sidewalk. Our patient in sweeping her apartments inhaled the dust, not knowing the danger from the dry sputum.

At this time she was exhausted with other troubles and very susceptible to the germ. The above influences existed for five months before she noticed any trouble. It first developed by a sensation of a foreign substance in her throat. This increased and a cough soon developed, followed by expectoration. Six months ago aphonia developed and one month later she came to Colorado.

Physical condition.—Left lung very seriously involved; cavity and coarse and fine râles throughout the lung. Cough excessive, expectoration profuse, bacilli abundant. Poor appetite, insomnia, aphonia, diarrhea and amenorrhea. Temperature 101.8 degrees, pulse 120, and scarcely able to go to meals. Former weight 139; present weight 114.

Treatment.—Commenced July 29 with Koch's "tuberculin T. R.," from $\frac{1}{500}$ mg. to $\frac{1}{2}$ mg. at the end of three weeks. During this treatment the temperature was reduced to 99 and pulse to 104. Bowel trouble slightly better, voice and appetite improved and slept better, but cough and expectoration had increased and night sweats appeared. August 25 changed to "antiphthisic serum T. R." At the end of three weeks patient felt much better and stronger, appetite improving, slept better, night sweats ceased and gained two pounds. But cough and expectoration had not improved and temperature was fluctuating between 98.4 and 100.6; bacilli abundant. I then resolved to use "antistreptococcus serum" in connection with the "antiphthisic serum T. R.," giving each on alternate days, increasing the dose gradually until at the end of two weeks more, 3 c.c. of each were being administered. Patient felt no bad effects from the increased dose except slight rheumatic pains in joints. Appetite and sleep both increased. Patient felt better and was gaining in strength. Coughed less at night. At this time a despondent mood came over patient and she stopped all treatment. Omitted treatment almost one month. During this time all symptoms increased and upon re-examination I found the left lung involved throughout and the trouble extending to the other lung. Temperature 101, pulse 120, patient weaker and evidently had lost ground. Patient commenced treatment again, taking the "serum," but very irregularly, omitting it almost half of the time. On November 19 there was no evidence of actual improvement. Cough and expectoration no less, temperature and pulse somewhat less, appetite and sleep better. Treatment continued. Subjective symptoms apparently better.

BLOOD STUDY: TABLE IX.

Date, 1897.	Differential Percentages.				
	S. L.	L. L.	Trans.	Phag.	Eos.
July 6.	10	9	1	78	2
August 5	13	6	0	79	2
September 22.	15	9	0	72	4
November 14.	10	10	1	77	2
November 22.	14	6	1	75	4

July 29 to August 23 used "tuberculin T. R." August 25 to September 17 used "antiphthisic serum T. R." August 17 to 28 used "antiphthisic serum T. R." and "antistreptococcus serum on alternate days." September 28 to November 14 omitted treatment. November 14 commenced "antiphthisic serum T. R." again.

Case 10.—Mr. C., age 25, single, nativity Pennsylvania.

Family history.—Maternal grandmother died of tuberculosis. All of her sisters died of tuberculosis. Mother died of tuberculosis at 47; sick four years. Confined to her room one year before her death.

Personal history.—Has never been strong. First evidence of present trouble commenced six years ago. Was almost constant attendant of his mother during the last year of her sickness and slept in the same room. His trouble commenced three months after commencing to care for his mother and nine months before her death. Commenced by taking a severe cold, in mid-summer, without any apparent cause. Cough, expectoration and night sweats soon followed. Former weight 135. Has had several slight hemorrhages. Came to Colorado three years ago.

Physical condition.—Physical examination revealed distinct râles over all parts of right lung. Left lung not involved. Cough troublesome, expectoration moderate, bacilli abundant, poor sleep, very poor appetite, temperature normal or slightly above, weight 115$\frac{1}{2}$.

Treatment.—Commenced "antiphthisic serum T. R.," September 23, with initial dose of 0.5 c.c. Reaction: More tired and stupid than usual. September 24 gave 0.75 c.c. Reaction: Back around puncture became swollen and painful. Axillary glands tender on both sides. Rheumatic pains in both hands. Cough diminishing. Temperature 99. September 26 gave 0.5 c.c. Axillary glands tender and swollen. Tenderness in joints. Slept six hours in the afternoon after taking serum. September 27-28 gave 0.5 c.c. Same reaction continuing with no new developments. September 29 omitted the serum.

Second week.—September 30. Temperature normal. Axillary glands less painful. Appetite improving. Felt better in every way. Gave 0.5 c.c. Reaction well marked. Slight rheumatic pains in joints. Felt chilly in the evening. Axillary glands less sensitive. During the remainder of the second week reduced the dose to 0.25 c.c. and gave it on alternate days. Patient recognized a marked improvement, slept better and appetite improved. Temperature normal. Circulation better. Reaction less, marked improvement, except considerable infiltration around punctures. Lost two pounds.

Third week.—Same dose continued. Respiration deeper, circulation stronger. Appetite slowly improving. Did not tire so easily, slept better, felt stronger, gained two pounds. Temperature normal.

Fourth week.—Same dose continued, followed by a slight improvement.

Fifth week.—Commenced daily treatments of 0.25 c.c. Very little reaction except felt tired, with a tendency to sleep. Cough much improved. In every way felt better.

Sixth week.—Increased the daily dose to 0.5 c.c. A slight instantaneous reaction followed the first injection of 0.5 c.c. The punctures continued to produce distinct infiltration and tenderness. Toward the end of sixth week increased the dose to 0.75 c.c. Patient slept all night and awoke hungry. Temperature continued normal notwithstanding the injection set up marked inflammation around the punctures. Patient looking better and feeling stronger. The results were so satisfactory from the increased dose that on November 2 I increased it to 1 c.c. This was followed by excellent results, except that it produced marked inflammation. Each injection not only setting up a distinct swelling and tenderness at the seat of puncture, but also increasing the inflammation around the previous punctures on the opposite side of the back. The first injection of 1 c.c. (November 2) set up such acute inflammation that it quickly developed into a small abscess. Consequently during the seventh week the serum was discontinued. On November 7 the abscess was opened. Except for the pain caused by the abscess the symptoms were very encouraging. During this week the cough and expectoration were much less than at any other time during the previous treatment.

Eighth week.—Patient much improved and insisted on beginning the serum again. Cough almost ceased except in the morning on arising, also very little expectoration. Encouraged by the marked improvement I began the serum again (November 11) with 0.25 c.c. Slowly increased the dose each day until 1 c.c was reached at the end of the eighth week with no unpleasant reaction. Symptoms rapidly improving. Patient tolerating the injection much better than before the abscess formed. Pulse reduced from 108 to 90. Temperature normal. I commenced this case knowing it to be a desperate one. The patient had very little hope of being benefited. It has required careful study but the results have more than rewarded me for the care and anxiety devoted to it. The blood study has been unusually interesting. Additional treatment used in Cases 8, 9 and 10: Gude's peptomangan and Fairchild's panopepton. Careful lung gymnastics used in all cases. Case continued under observation.

BLOOD STUDY: TABLE X.

Date, 1897.	Differential Percentages.				
	S. L.	L. L.	Trans.	Phag.	Eos.
April 30	14	9	1	75	1
September 23	16	9	1	71	3
October 9	17	9	1	66	7
November 3	10	7	1	71	11
November 6	10	6	1	79	4
November 7	17	6	0	75	2
November 13	17	6	0	72	5
November 20	17	7	0	67	9

September 23, commenced "antiphthisic serum T. R." October 9, improvement commencing. November 3, inflammatory leucocytosis. November 6, abscess forming. November 7, after opening the abscess. November 13, improving. November 20, much better, stronger and coughs less.

Blood Study.—The blood study made in the foregoing cases has constituted no small part of the labor connected with this research. The interesting blood changes observed during the progress of the treatment is a strong proof of the curative effect produced by the serum. The variation in the differential count as given in the tables were by no means the only characteristics observed in the blood. There are also many grades of cell disintegration, as well as many grades of imperfect cell development in such blood. But it is not my purpose at this time to discuss blood appearances in tuberculosis, since I have already attempted this in a former paper.[2] I have however used this means of study to aid in forming a more accurate conception of the true condition of the patients when beginning the serum and to aid in following the progress of the cases while under the treatment. The blood study in these cases shows conclusively that distinct and uniform blood changes progressively develop as the disease advances. While on the other hand equally as important changes develop as the cases return to the normal state. I have observed that in those cases in which improvement was taking place the first evidence was detected in the blood. These changes are as follows and are shown in the foregoing tables: *a*, an increase in the percentage of young cells or small lymphocytes; *b*, a decrease in the percentage of phagocytes; *c*, an increase in the percentage of eosinophilous cells; *d*, a decrease in the amount of cell disintegration.

On the other hand, when the disease was advancing the foregoing symptoms were reversed, as seen in Case 8. Therefore, this study demonstrates that the cases treated with the serum show that the deterioration of the blood is diminished and that there is an added stimulus in the direction of increasing cell genesis and constructive cell metabolism. In other words, the two conditions which universally increase with the advance of the disease are observed to diminish; and with beginning convalescence they show a tendency to return to the normal.

Indispensable factors.—The skill required for the proper preparation and administration of serum is scarcely yet appreciated. Serious consequences may result unless the products are prepared according to accurate scientific principles, by those who care more for a reputation of conscientious work than for commercial profit. While on the other hand the improper administration of a pure serum may bring about results which may unjustly be attributed to the serum. The greatest care in the administration of an impure or decomposed serum will not prevent the development of unpleasant results. Hence, for satisfactory results in serum therapy there are two indispensable factors: Pure products and cautious administration.

Physiologic effects.—I have experienced not a little satisfaction in the fact that there have been no unpleasant or dangerous results from the administration of this serum. It, however, produces reactions which are as characteristic of the physiologic effects as are obtained from the use of quinin or any other therapeutic agent, and if carefully and properly administered I have found no occasion for alarm.

Symptoms of slow reaction.—An increase in the dose brings about physiologic effects which are not uniform in all cases. These may briefly be enumerated as follows: A tired sensation; a desire to sleep much of the time; rheumatic pains involving the joints; tenderness and swelling of axillary glands; chilly sensations, which generally appear several hours after receiving the injection; inflammation at seat of puncture which usually is slight and ceases after first or second week; an erythema, which is not severe and soon disappears; a flushing of the face after the injections, sometimes immediately, but more frequently several hours later; occasionally a tingling sensation is experienced over the surface of the body several hours after taking the injection, and when it occurs it is generally early in the treatment or at a time when the dose is being increased. Headache seldom or never occurs.

Instantaneous reaction.—A sudden reaction sometimes occurs after an injection of any serum. It is probably due to a too sudden and forcible injection of the fluid, especially when the point of the needle terminates in dense and non-elastic tissues.

The needle produces more or less injury to capillaries or veins. And since a compressed liquid naturally tends to escape through channels of least resistance, the pressure of the tissues upon the serum directly forces it into the blood current through the rupture made in the blood vessels. When this occurs an instantaneous reaction of more or less intensity may be produced. This varies somewhat in different persons and at first may cause alarm, but soon subsides without leaving any deleterious results. When the serum is thus forced directly into the blood stream the full physiologic effect is suddenly experienced. While on the other hand if the serum is injected slowly into the loose tissues, absorption takes place slowly, and the sudden reaction is avoided.

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[2] Medical Record, Sept. 5, 1896, March 13, 1897. Journal of the American Medical Association, Oct. 23, 1897.

During the course of my observations I have suspected another cause for these sudden reactions. I have observed that they are not constant. Many patients do not experience them at any time during the treatment, some very slightly, and others to quite a marked degree. I have observed that those who have experienced them have done so both under a gradually increasing dose, and under a continuous uniform one. I have not yet observed them early in the treatment. When they are experienced, it is generally after the patient has been under the treatment for some time, or after rapidly increasing the dose.

These observations therefore have caused me to suspect an accumulative action of the serum. Case No. 10, has been the only one to experience them to a marked degree. And after each reaction patient has invariably felt good results.

Rules for administering the serum.—With a view of obviating the sudden development of the physiologic effect, I have taken the precaution that the point of the needle passes entirely through the skin into the elastic cellular tissues, and am also careful to force the serum very slowly into the tissues. If at any time an unusual pressure should be required to expel the serum we may be certain that the point of the needle is in dense and non-elastic tissue, which should be a guide for the exercise of caution.

The following are a few of the precautions which I have used in the administration of this serum. 1, I usually begin with the minimum dose of ¼ c.c.; 2, the dose is slowly but progressively increased until a reaction is produced; 3, when the reaction is well-marked no further injections are given until it has diminished, and then a smaller dose is commenced and again slowly increased; 4, in very succeptible patients, when a marked reaction is produced by a small dose, the treatment should be given on alternate days until a tolerance is established, otherwise it is given daily; 5, in advanced cases or in those who react quickly to the treatment, it is desirable to proceed with caution; 6, with such cases I take the precaution of placing them in the recumbent position while giving the injection, and at the same time give them a moderately strong current of electricity.

Limit of tolerance.—The limit of tolerance varies in different patients. I have observed that those in the last stage of the disease with a high temperature tolerate large doses, and those well advanced in the disease with low temperature, usually respond to very small doses.

Ultimate effects of the serum—These may be summarized as follows: 1, it improves the appetite and sleep; increases the weight and strength, lowers the temperature, lessens the pulse rates, diminishes the cough and expectoration, stops night sweats and lessens the disposition to take cold; 2, it increases the production of young cells in the blood, diminishes cell disintegration, and increases the percentage of eosinophile cells.

Deductions.—From the effects obtained from the new serum, in the foregoing cases, covering all grades of the disease, I make the following deductions: 1, in early incipiency the disease can be cured and convalescence rapidly established; 2, in cases possessing strong family and personal histories pointing to a marked tuberculous disposition—the early use of the serum T. R., will bring about a rapid improvement, diminishing the susceptibilty to the germs, and by this means prevent such cases from passing into the more active stage of the disease; 3, cases of advanced tuberculosis without mixed infections, show encouraging results; 4, cases in the last stage with mixed infections receive temporary benefit, the progress of the disease being partially held in check, but it is doubtful if a permanent cure can be established except, in rare cases; 5, a blood study is not only a reliable means of showing the condition of the patient but also the progress of the treatment.

After making a careful study of the effects of the antiphthisic serum T. R., I am frank in stating that thus far it has given most gratifying results.

My results upon patients correspond very closely to those obtained by Dr. Carl Fisch, in his excellent laboratory experiments, reported in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Oct. 30, 1897.

The cases which I have had the opportunity to study demonstrate that if a diagnosis is made early in the development of the disease, this serum offers bright hopes of bringing about a recovery; and, furthermore, cases known to possess a strong tuberculous predisposition may, if the serum is made use of sufficiently early, increase the immunity, and prevent the disease from passing into the stage of active disintegration.

If the results continue to be as gratifying as those which I have already obtained, the antitoxic and bactericidal properties of the serum in tuberculosis in man can not be questioned.

Having received such excellent results from the antiphthisic serum T. R., on all cases commencing the treatment early, I believe they justify the conclusion that, if cases with a known tuberculous predisposition should take the treatment while they exist as such, it will check the disease from further development. If this point becomes fully established it will bring about a revolution in the treatment in tuberculosis; the treatment then being directed with as much energy toward preventing as toward curing the disease.

One other point should receive a passing notice. I have reference to the advantage of climate in connection with the antiphthisic serum T. R.

The climate alone, in nearly all of the foregoing cases, relieved the symptoms after the patients came to Colorado. The improvement, however, was marked but not complete, many arriving at a certain point then cease to improve.

The climate in such cases exhausts its power and they either remained apparently stationary or begin to lose ground.

Hence, I believe that the effects produced upon the majority of the foregoing cases show conclusively that the best means for bringing about continuous and permanent improvement in tuberculous cases, is to be found in the new antiphthisic serum T. R., aided by a properly selected climate.

205 Jackson Block.

Pilocarpin in Pneumonia.—Lidmanowski reports eleven cases of pneumonia arrested by the second or third day, passing at once into convalescence, by immediate treatment with large doses of pilocarpin, dose 0.1 gram a day. He ascribes its favorable action to the energetic leucocytosis produced.—*Wratsch.*

PERSONAL OBSERVATIONS IN PULMONARY PHTHISIS.

Read before the Clinical Society, Dec. 7, 1897.

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ELIZABETH, N. J.

After an experience of twenty-five years, I desire to present some conclusions, the result of my own personal observations in pulmonary phthisis. I use the term advisedly, on account of its comprehensiveness, including as it does all that has been known and taught from Laennec to Koch.

The preparatory or premonitory conditions which almost invariably exist in all cases of phthisis do not receive the attention they deserve.

Let us apply the principle of early recognition of these little departures from functional and organic integrity, to the disease in question.

They deserve to live, who by careful attention to the various functions of the body, keep the various mechanisms of their various organs in harmonious rhythm.

Ignorance does not pardon in the eye of the law, and the penalty must be paid even though it may cost the life.

Max Nordau says "the degenerate must die." An inheritance of conditions which must inevitably end in an early death, is the result of ignorance, crime and fatuitous circumstances, many, if not all, of which might have been avoided.

To educate the public out of this phenomenal darkness, and where they can not be educated, to legislate them out of it, is the duty of the medical profession. Out of the complex phenomena of a disease which presents such a diversity of symptoms and conditions, it has been my aim to determine what is the first appreciable departure from health, the most constant symptom, discernible by patient and physician alike, which would lead us to suspect that the individual in question is in danger of ultimately becoming tuberculous. Many of the disagreements between physicians as to the natural history of diseases have arisen from the fact that they have observed from different standpoints and from different starting points; the latter being of much greater importance than the former, for the standpoint may be changed from day to day but the starting point can only be changed as a confession that the *fons et origo* had not as yet been discovered.

A few years ago I arrived at the conclusion that the first symptom (aside from general malnutrition), is a slight cough or hack repeated two or three times on an average, on reclining, at night. This cough antedates the morning cough by a considerable period, varying in length in different subjects. It is a little thing, but its etiology is important beyond measure. It is *the diagnostic symptom*, which having been found and understood by the physician, gives him an enormous advantage in the prevention and cure of phthisis.

The patient believes himself to be in fair health. He has no pain, no cough at any other time, no disturbance of any other function, is only a little below par, and will sometimes deny that he has any cough, until told by the members of his family that they have repeatedly heard him cough, when he lies down at night. This same evidence has been repeated to me so many times that I do not doubt its significance, and I consider it the test question "does he cough on reclining?" If there is a symptom prior to this, I have been unable to find it. The etiology of it, I believe to be this, viz: that the mere change of position from the erect to the recumbent, has produced an immediate change in the circulation of the blood and air in the pulmonary structure, disturbing the equilibrium which always exists in healthy chests, controlled by the natural tension through the vaso-motors. A temporary passive congestion or hyperemia is produced thereby, due to an insufficient expansion of the finer tubes and vesicles, the blood pressure being out of proportion to the air pressure, and the coats of the vessels being over-distended or varicosed by want of support, the blood currents come under the influence of an extraneous force, *gravity*, which never occurs in vessels whose coats are normal, except by complete inversion of the body or as in the hypostatic congestions of long illnesses.

The change to the recumbent posture immediately causes an increase in the distending force within the blood vessels, and a decrease in the amount of air in the tubes and cells. As a result of this, a backward flow of blood into the bronchial vessels, and a sensation of fulness or tickling is perceived in the region of the head of the sternum.

The cough that occurs is nature's own effort to remove this fulness, which it accomplishes at first with only a few long breaths and coughs. If this pathologic condition is not relieved early, it continues until it requires stronger and more prolonged effort in the act of coughing to remove it. The objective symptoms of this condition are found in a slightly diminished resonance of a higher pitch, slight depression under the clavicles follows this, and still later the mucous click or catarrh of the apex. Mensuration shows a deficient expansion above normal, often below, except in women, from the effects of corsets and other tight clothing, which they invariably insist is not tight, and can only be convinced by ocular demonstration with the tape line. (The tape line should never be out of the physician's pocket, except when he is using it.)

Ausculation reveals a still more important point; a diminished or absent true respiratory or vesicular murmur. This symptom, I consider of greater importance than all the other objective symptoms, and it is invariably found somewhat before and always associated with the gravitation cough.

In the wondrous mechanism of the lungs we find the ramifications of the pulmonary artery intertwining among the air cells, forming a close and delicate network of capillaries, in the interspaces, supported by the highly elastic structure of the air cells. Elasticity is one of the most distinguishing characteristics of these cells. They are in health never empty, and in death can only be emptied by force. With every inspiration, both air and blood are aspirated into the lungs. When air is in excess we have emphysema; when blood is in excess, we have congestion, which being continued indefinitely brings on in time an endless chain of pathogenic conditions which must end in death, if not relieved by proper systematic treatment. Of emphysema, I need only say that the emphysema which results from spasmodic bronchial asthma, is antagonistic to phthisis.

Now, I believe that all the influences which diminish nervous and muscular force, and their number is great, such as sedentary pursuits, the dark side of life, residence in low and malarial regions, clothing that prevents a perfect action of the diaphragm and chest walls, dissipation, indoor occupations, worry and many others, these all tend to shorten the respiration and diminish its depth; as a result of this a gradual dilatation of the capillaries takes place, in that part of the lungs where the vesicles are least distended a passive congestion is produced, and thus is furnished a soil that will nourish tubercles.

The force of the heart's action, often increased by excitement, by stimulants of any kind, by muscular effort, by normal tension of vessels altered by chilling the cutaneous surface, and other causes aid in producing a dilatation of the pulmonary capillaries, and thus the blood currents coursing through vessels which have lost their contractility come under the influence of this extraneous force, *gravity*.

It is to this immediate influence that we are to look for the explanation of this cough on reclining, which we may distinguish as the *gravitation cough*. This condition is so important that it seems deserving of a distinctive name in our nomenclature of disease symptoms.

Upon the correct explanation of this cough depends the entire treatment of phthisis whether bacillary or non-bacillary. It is as easily gotten rid of even when the conditions have gone so far as to produce cough in the morning with expectoration and pain in the subclavicular and interscapular regions from congested pleuræ. These last two stated conditions occur in the order in which they are mentioned, the cough in the morning with expectoration as a result of a longer continued gravitation blood pressure during sleep, producing exudation into the bronchi, which is expectorated on arising. This exudation may not come on until weeks or months have elapsed since the gravitation cough began.

The pain in the pleuræ comes on still later as a result of the damming up of the blood currents and vaso-motor paresis, producing congestion in that tissue.

I have associated these three symptoms or conditions, before speaking of treatment, because they are all removed by *mechanical expansion*. The function of respiration, unlike those of other vital organs, is placed under the control of the will, whereby the integrity of the pulmonary apparatus may be preserved, by maintaining a perfect function of these organs. This is indeed an important safeguard. It is impossible to maintain a perfect organ without a perfect function. This principle applies to all of the voluntary organs of the body, and more especially to the breathing apparatus, exposed as it is to the vicissitudes of climate, and dangers of infection by bacteria.

Jacobi has truly said that the "tubercle bacillus never attacks healthy tissue," and I believe it to be equally true, that when they have found a lodgement in the tissues of the lungs, we have as yet no drug that can be administered, by way of the stomach or through the blood by hypodermatic injections of sufficient strength to destroy them. We counteract the effect of their toxins and increase the resisting power of the tissues against their encroachments, and there our drug power ends.

I have used the term *mechanical expansion*, by which I mean a regular systematic *natural* method of increasing the capacity of the lungs, maintaining a normal function and regaining it when lost. It is common among physicians to recommend mountain air to their phthisical patients. The benefit of this procedure is beyond question, but of the great multitude of cases, there are comparatively few, who are able to profit by this advice. The science of climatology is one of great interest, inasmuch as at the present date it is capable of showing better results in the treatment of phthisis, than the more fashionable science of bacteriology or any other. We know that there are regions almost entirely exempt from phthisis, others where it is more commonly found, and others where it prevails in great abundance.

Solly, who is recognized as an authority in the science of climatology, says "consumption is most prevalent in proportion to the temperature and humidity of the climate: 1, in damp cold climates; 2, in damp hot climates; 3, in dry hot climates; 4, in dry cold climates; while in curative effects it is true in reverse order. This indicates in a general way, that dryness is a benefit, and humidity obnoxious to phthisis." He qualifies the statement by saying that "apparently, humidity apart from other factors, does not in itself produce phthisis." It is my opinion that our phthisis cases, here, do better in the winter even with our sudden changes of temperature and humidity, than in the warm, debilitating, moist air of midsummer.

In regard to barometric pressure, Solly says "that statistics show an almost steady rise in the percentage of improvement, from the ocean to the altitudes, and from this we learn, that as a rule, the consumptive improves the further he is removed from the sea, as shown in the contrast of percentage of improvement in a large series of cases: sea voyages 54 per cent.; low land climates, 57 per cent.; dry desert, 65 per cent.; altitudes, 77 per cent. Therefore, while the desert of Arizona will cure more cases of consumption than the sea air of the coast, yet it will not cure as large a proportion, as will the mountain air of the highlands."

Hirsch has shown, "that decreased barometric pressure tends to confer more or less immunity from phthisis. The marked decrease which is present in all high altitudes has been demonstrated by Egger, and others, to have a remarkable effect upon anemia, by increasing the amount and quality of the red blood corpuscles and hemoglobin; that the blood changes are brought about, not by the quantities of dryness, sunlight, or other climatic factors in high or other climates, but by the diminished barometric pressure, was proved conclusively by the classic experiment of Regnard, who, at sea level, kept a rabbit in a bell glass under diminished air pressure, equivalent to the atmosphere at 6,000 feet elevation for a month; when the rabbit was removed, it was found that the same blood changes had taken place, as occured in rabbits transferred from sea level to a climate at 6,000 feet elevation." This experiment, instructive as it is, brings up another question, would the same changes in the blood have been produced in an animal breathing the same rarefied atmosphere of 6,000 feet with the density of atmosphere pressing upon the external surface of the body as exists at the sea level. That is, was the improvement due to the rarefied air alone which the animal breathed, or was it due to this combination with the diminished air pressure upon the surface, or was it due to the decreased pressure on the external surface alone?

There are those who claim the improvement in the blood is due to breathing rarefied air. I do not know of experiments having been made which prove this conclusively. Certain it is that the decreased barometric pressure upon the external surface compelled a greater expansion of the chest, opening up a larger surface for the interchange of the gases, and consequently a greater oxygenation of the blood, the greatest of all hematinics, with improvement in the digestive system as a result of increased oxygenation.

I believe it is the forced distention of the lungs and bronchi, to those who live at an altitude, that gives immunity against phthisis. Aside from the barrel-shape chest of emphysema, the full round chest is an acknowledged evidence of healthy lungs. A flat contracted chest is a constant invitation to tubercle bacilli and an evidence of so called weak lungs. To imitate the effects of altitude has been my practice for over twenty years, and in the lack of suitable apparatus to assist them, to teach my phthisis cases the art of mechanical expansion. Among the various ingenious methods which have been devised I could find none that were free from objections, as they almost invariably increase the heart's action, which opposes rather than helps the purpose of their use.

I have practiced but two specific exercises, which nature herself teaches. The first is an imitation of the cough, and the second of a person stretching. In practicing the first we take in the air through a space between the lips, about a quarter inch in diameter. Some patients do not grasp the idea readily, or are not accustomed to whistling and require the use of a tube through which to inspire. When the lungs are filled to their utmost capacity the lips are closed and the cheeks bulged to prevent escape from the nose. The air is held until the excess of blood is driven from the lungs, as evidenced by a sensation of fullness in the forehead and slight reddening of the face. By holding the breath after a full expansion, the blood is squeezed out of the lungs into the general circulation, and by frequent practice of it the lost equilibrium is regained.

This action is equivalent to breathing at an altitude, or inhaling compressed air at sea level. The stretching exercise is performed in the same way with the addition of raising the arms, without flexion, directly above the head at the beginning of the inspiration, and lowering them upon the chest as soon as the lips are closed. The purpose of lifting the arms above the head is to lift the chest wall by means of the pectoral muscles. The effect of these exercises is seen in the immediate improvement of percussion note, with lowering of pitch, a rounding out of the depression under the clavicle; the voice changes from a throat to a chest tone, and the removal of the mucous click which has been diagnosed by some pathologists as a sure indication of tubercle. The true respiratory or vesicular murmur, the most significant sign of a normal chest, is restored in its entirety.

A continuation many times a day of these exercises results in a radical cure with no other medicine than that which is directed toward nutrition and the sustaining of the nervous system. All the symptoms heretofore described may return again as the result of neglect. The price of health is vigilance and effort. If the phthisical patient would live and be healthy he must work for it, and in the way I have indicated or by some similar method, or he will miserably perish, notwithstanding he may swallow all the drugs in the dispensatory and be injected with all the serums and specifics, so-called, which are now obtainable. The expansion method of treatment is *nature's method*, and is helpful in every stage of the disease except when there is active hemoptysis from organic changes, at which time they should be stopped until the bleeding ceases, and then begun again with very slight force at first, gradually increasing to the utmost limit after a few days have elapsed.

When pleuritic adhesions have formed, whether bacillary or not, the expansion must be so graded as to avoid fresh exudation, or inflammation, being guided by the sensation of pain. The greatest obstacle to recovery by this method is the ossification of the costal cartilages in a contracted state of the chest; being permanent, it will squeeze the life out. Thus far I have spoken of treatment in the primary stage before organic changes have taken place to any very great extent.

I am often astonished to see what can be done by this method with phthisis cases after they have become tuberculous, with mucopurulent expectoration containing numerous bacilli, with afternoon fever, temperature rising to 101.6 and 102.4, pulse 120, night sweats, anorexia, emaciation and dilated heart. I have seen these cases clear up and remain for years perfectly well, when at the first examination it was impossible to make a diagnosis on account of the foul condition of both lungs, the tubes being filled with râles, the pleuræ sore, respiration only tidal and percussion dull. I defy any one to make an exact diagnosis in some of these cases in detail, as to the extent, kind and location of the diseased processes going on, until he has cleansed the tubes and opened as many of the alveoli as it is possible by expansion.

An easy diagnosis is made by the microscope, but to drop the diagnosis at that and treat the bacilli instead of the patient, is very unscientific, because we have nothing with which we can destroy the bacilli, and even if we could destroy them would it be wise to leave the chest in the same contracted condition, with choked tubes and capillaries, with exudation products in the alveolar walls and their cavities filled with epithelial elements ready for a new infection? More than twenty years ago, before we knew anything about tubercle bacilli, I treated phthisis patients by this method, who had cavities with all the accompanying evidences which we now know as bacillary phthisis. Some of them are living today, well and performing the duties of an active life. Some have married and borne children.

The following case illustrates the effect of expansion upon hemoptysis. This case I saw in his sixteenth hemorrhage. His disease was purely functional, a case of *lazy lungs*. I instructed him as to his breathing, and he has had no return in the last twelve years, being in robust health. As an illustration of the immediate effect of thorough expansion, without medicine which could affect the fever, upon a case which the microscope diagnosed bacillary. The patient had been under treatment about six months before I saw him; male, aged about 40 years; had considerable cough; had lost flesh and strength; some pain in right chest front and back, with diminished expansion.

Oct. 12, 1896, I found him with temperature 101.6, pulse 88; 13, same hour, temperature 100.6, pulse 88; 14, temperature 99.8, pulse 86; 15, temperature 99.4, pulse 88; 16, temperature 99.2, pulse 80; 17, temperature 98.6, pulse 80. After this the temperature did not rise above 99.4 until an attack of grippe on the 28th, when his temperature rose to 104.4; 29, 104.2; 30, 101.4; 31, 100.8. November 1, normal and so continued, never rising above 99.8 during November. His temperature was taken from three to five times a day. During the first half of December pulse and temperature both remained normal, when my attendance ceased. He continued to attend to his business (which was much in his favor as he was obliged to walk several miles daily) after his recovery from the grippe, and I have not seen him, as a patient, for nearly a year, during which time he has been about as a traveling salesman, enjoying good health. The immediate effect of this treatment is often so astonishing to the friends of patients, that in accordance with the prevailing sentiment among the laity, as to the incurability of consumption, they will refuse to accept the diagnosis, even of the microscope, and after a time become careless and forget the advice to keep the chest well expanded, until the same conditions recur, and the patient returns, again to be told the same thing and to go over the same plan of treatment, or changes his physician for some other kind of treatment. It is easier to take medicines, it is pleasanter to be told they have "only a little bronchitis" and need a little medicine to stop the cough and ease the pleuritic pain.

A quick confidence is gained in the physician who will thus treat them, but it is a deceptive confidence that lulls the patient to a fatal inactivity, and ere long he turns from one to another, until finally he has more need of the undertaker than the physician. These are the saddest cases we see. Their day of grace is passed; organic changes have taken place to such a degree that little can be done but palliate symptoms. There are many cases that progress rapidly toward recovery for a few weeks, and hope is high, when all at once they begin to complain of the labor of expansion on account of weakness of the diaphragm and chest muscles.

This is the point in their disease in which an immediate change to a high altitude becomes (in the absence of suitable apparatus to accomplish the same purpose) an absolute necessity to remove a portion of the incumbent atmospheric pressure upon the chest and abdomen, and thus lighten the labor of breathing, increasing the nutrition of all the tissues through a better oxygenation of the blood. This is the way by which the resisting power spoken of by others is, in great part, sustained, and may be aided by the administration of hematics; the hypophosphites according to the Churchill method, bathing, suitable food, out door life, still remaining under the watchful care of the physician. To those who can not avail themselves of this altitude treatment, this assertion that they are too tired to expand their lungs, is the beginning of the last stage, where there is no reasonable hope for recovery.

To this class of cases, however, the principles of "pneumatic differentiation" may be applied as an equivalent for altitude, and like effects produced in the patient's home at the sea level, as upon the mountains.

The pneumatic cabinet was designed for this purpose twelve years ago, and its action has been proved to be theoretically and practically correct, and is still held by some of the most distinguished men in our country, as second only to altitude, and as "the best therapeutic device ever invented" for the home treatment of pulmonary phthisis.

An insurmountable obstacle to its adoption into general practice has been its great cost. Being a heavy steel cabinet, it can not be moved from place to place to suit the necessities of the patient, but being kept at the physician's office, it may be used for twenty to thirty minutes once or twice a day. Those days on which he needs it the most he is prevented from using it by the conditions of the weather. What we need is a portable apparatus of small cost which the patient can use at his own home under the direction of his physician, using it as often and as long as his case requires. Beneficial as these treatments by the cabinet have proved to be, in many cases bringing about absolute recovery from bacillary phthisis, its success is but a finger board, pointing to something better, yet to be produced, which shall enable the physician to give to his phthisical patients the equivalent of altitude, with the comforts of home and friends superadded thereto, coupled with his careful guidance, in everything that pertains to sustaining the vital forces, improving the quality of the blood by food, exercise, bathing, hygienic clothing and medicine.

Von Ziemssen, at the twelfth international congress at Moscow, last August, says: "Looking back over the history of tuberculosis we see a motley conglomeration of methods of treatment. All these have been discarded, and but two agents remain to be considered, tuberculin and climate.

"Koch's old tuberculin has been forgotten, the value of the new has not been proven, and most people doubt its efficacy.

"The complexity of the lesions makes a cure by means of a specific seemingly impossible. Fresh air has always been one of the requirements, but it is only of late that the advantages of high altitudes has been clearly demonstrated. Fresh air is not all; it is the altitude that brings about an excitation of the blood-making organs, and increases the corpuscular elements in the blood."

Senator "regards altitude second only in importance to fresh air."

Von Leyden says, "So far the only treatment that has given any positive success is the climatic."

The causative relationship of the bacilli to the disease is an important question. Tuberculosis is always produced by the bacilli, but all phthisis is not tubercular in all its stages. I hold that it is an incident in the course of the disease and not the primary cause of pulmonary phthisis. The tubercle bacilli may be found in the air passages of perfectly healthy individuals. It is not commonly found until after considerable organic change has taken place in the pulmonary structure. It can not then be rightly considered as the cause of phthisis."

Jaccoud enumerates a long list of pathogenic conditions and says, "These multiple and variable elements are the true causes of the disease, the microbe is only the instrumental agent."

Barton says, "Back of the bacillus are causes which are operating to produce malnutrition and a lowered vitality."

The evidence of an imperfect lung function as a causative agent is forcibly shown in the effect of the contraction of extensive scars upon the chest resulting from burns and scalds, thus favoring lodgement for the bacilli. Three cases of this sort were reported last year by Dr. Hall of Denver, in which one side of the chest in each case was scalded during infancy, and pulmonary disease began on the contracted side.

The night sweats of phthisis need to be considered in this connection, because they are a direct result of insufficient pulmonary aeration and exhalation. The skin with its glands is complementary to the lungs and supplements their action by elimination of its exhalation, in double the quantity exhaled through the lungs, being a daily average of 30 ounces for the skin and 15 ounces for the lungs.

When for any reason the function of the lungs is impaired, so that the normal quantity of carbon dioxid is not exhaled, the skin supplements their action at a time when the auto-intoxication has become so great as to cause a temporary paralysis of the vasomotors, with relaxation of the superficial capillaries. The night sweats are always accompanied with increasing weakness of the entire system, and are generally considered the cause of the great prostration which follows them. I do not believe this. The sweat is the result of a specific poisoning, principally by carbonic oxid and the products of metabolism, and is a conservative process, while the exhaustion which follows is a result, not of the sweating, but of the poisoning. We have seen how quickly the skin responds to the demand put upon it in case of urgent dyspnea from any cause. If all this be true, it certainly is very unscientific to give medicines to check the night sweat, for by so doing the system is still further poisoned, the vitality reduced and the end hastened. I have not for many years used medicines to control this symptom, but have found that an increase of expansion systematically carried out uniformly relieves it.

An instance of this kind was recently seen in a case of phthisis in our own hospital. The action of expansion in relieving and stopping night sweats is the strongest argument I could ask for in substantiating the truth of my statement, that it is the poisoning that exhausts and not the sweating and we conclude that it is wiser to treat the cause than the effect.

For several years past almost the entire medical profession seems to have been captivated by the discovery of the tubercle bacillus, and have experimented with many methods and drugs with the hope of destroying them by medication. All these have failed. As well try to check the resistless current of a mighty river by catching the fish in its stream. There is probably not a single case of advanced phthisis in the country today under the care of a physician but what has been treated with creosote or guaiacol or their carbonates. Creosote and its allies, without affecting the vitality of the bacilli seems to have a beneficial effect, temporarily at least, upon the general conditions. This I believe to be done by its antiseptic power over germ life in the alimentary canal. The discovery of the bacillus, although an important addition to our knowledge of one of the stages of the disease, has resulted in no therapeutic advantage, but has rather diverted the attention of the profession from the clinical aspect and the various lessons to be learned therefrom, to that which is only one of the factors in the disease, one which without doubt may be in some cases primary, but which clinical experience proves to be only a resultant, and not the prime causative factor, in the great mass of pulmonary phthisis.

I believe there remains but one method worthy of the undivided attention of the profession, viz.: Aerotherapy as indicated previously, and although it demands of the physician a greater outlay of time and effort for the benefit of his patient, yet I doubt not that ere long the principles of this science will be understood and practiced by the great majority of our hard working fraternity, because the results which follow are distinct and positive, and because there is nothing else which satisfies the requirements in every case, to such a degree as aerotherapy, the science which is destined to take the highest place in all that pertains to the prevention and cure of pulmonary phthisis.

FIVE YEARS' SUCCESSFUL EXPERIENCE WITH A SPECIAL MODE OF TREATING PULMONARY TUBERCULOSIS.

BY CHARLES WILSON INGRAHAM, M.D.
BINGHAMTON, N. Y.

During the past five years I have given my exclusive attention to the special treatment of pulmonary tuberculosis, and during the latter half of this period I have developed a definite mode of treating this disease which has proved so successful that I shall endeavor to place the system before my readers in an accurate and thorough manner, believing as I do, that if this mode of treating these affections was generally and faithfully practiced, the mortality from tuberculosis could be sensibly reduced in a very short time.

The first thing is to make a careful examination, both physical and microscopic, to determine accurately that the disease is tuberculosis, and this examination should embrace a complete family history of the patient. The securing of an accurate and complete family history of consumptive invalids is too often neglected, and this neglect takes from the physician a powerful aid in treating his patient. It is important to know what diseases have existed in the family, and particularly if the patient has inherited a tendency to tuberculosis. Indeed, without the aid of a thorough family history it is impossible for the attending physician to advance an accurate prognosis. It does not matter how mildly the affection has attacked the individual, the prognosis advanced without first understanding the family history is worse than valueless. It is confusing. It may be the means of allowing the patient to follow a line of treatment far from correct, and totally incapable of successfully combatting the disease. With a careful record of the physical condition, and the records of several successive microscopic examinations of expectorated matter, together with a thorough family history, the physician is prepared to commence treatment.

As concerns exercise, how much shall the patient be allowed to take each day? I determine this question with the aid of the fever thermometer alone, and my rule is this: If the daily average exceeds 100.5 degrees, I recommend that the patient take very little, or better still, no exercise; while if the temperature reaches or exceeds 101 degrees, I recommend the thorough application of the "rest treatment," until the temperature has fallen below a daily average of 100 degrees. The temperature must be below 100 degrees for the reason that once having ranged high, it must reach a low average, else it will quickly return to its former height when the rest treatment is discontinued and the usual exercise again begun.

The rest treatment is one important item, and but for it many desperate cases which have made permanent recovery must have terminated fatally. This treatment is generally known and requires only a very brief reference. This treatment consists in the patient remaining in bed for several weeks, the time varying according to the condition of the patient, as closely as if suffering from serious acute disease, and the physician should forbid the patient from spending a part of the time lying on the couch or in an easy chair. To secure positive benefit the rules of remaining in bed continuously, arising only to have the bed aired, must be strictly adhered to. It is almost marvelous how rapidly a change for the better will occur with the adoption of the rest treatment, and generally so apparent is the improvement to the patient that he is willing to fulfill his part. There are many patients of this class whose recovery may hinge entirely upon the rest treatment, who will refuse to isolate themselves for a few weeks hoping that recovery will be effected without the necessity of following such stringent rules. Others believe they can not leave their business. Necessity compels others to follow some regular occupation.

I refuse outdoor exercise altogether if the height of the fever warrants, although I insist that the invalid remains out of doors all day in pleasant weather, advising him to sit quietly in some sheltered place. I never allow extensive general exercise when the slightest fatigue elevates the fever to a high point. In general also never allow the patient to become fatigued and never allow him to take his meals when fatigued, or after exercise. Always advise a half-hour rest before meals.

Chest expansion should be practiced; encourage the patient to practice expansion of the chest each day, that he may make a perceptable improvement from week to week. I have seen patients with a chest expansion of but two inches increase to six inches within two months. The permanency of recovery from pulmonary consumption depends much upon the chest capacity of the individual, and there is nothing which ensures disease resistance and vital power of the pulmonary organs better than a good chest capacity, while on the contrary experience shows that it is among those who have but little capacity that we find the consumptive invalids.

One of my favorite modes of encouraging chest exercise is to fill a ten-gallon bag with oxygen gas, which is the average daily amount I use in consumptive cases in whom it is indicated, and encourage them to reduce as rapidly as possible the number of inhalations required to empty the sack. Those who do not use the oxygen may be treated by filling the sack with pure air by the aid of an air pump. I have seen invalids who at first required sixty inhalations to empty the sack reduce the number of inhalations to twenty within six weeks, and cases showing this improvement have been by no means rare.

Having now disposed of the subjects of general exercise, rest treatment and chest exercise, I come to the subject of general therapeutics. The administration of drugs by the stomach in the treatment of pulmonary tuberculosis is attended with great uncertainty. No matter how plainly the drug may be indicated, and in a large percentage of cases more harm than good follows the use of drugs in this way. It is well known that the stomach is very weak in all cases of phthisis, from the very incipiency throughout the course of the disease, and in a large percentage of instances the digestive organs are totally unable to perform their ordinary functions of the digestion and assimilation of nourishment, and when there is added to this task the digestion and assimilation of medicines the result is disastrous; the patient receiving no benefit from the drugs, which the proper organs were incapable of assimilating, and at the same time the assimilation of nourishment is more or less interfered with. Hence if the stomach is scarcely able to perform its normal functions we can not expect to introduce into the general system through this medium, any form of medication with any degree of certainty, and in the treatment of tuberculosis where errors are very serious if not fatal, we must make use of means attended with the greatest certainty, and those means which are at all uncertain must not be adopted. It is better not to attempt any mode of treatment which will not, with a reasonable degree of certainty, accomplish benefit for the invalid. The first object to accomplish in the treatment of phthisis is to gain control of the tubercular processes in the pulmonary organs, and until this is accomplished the disease is not under control, or is progressing. We must prevent the extension of the tubercles already formed, check the activity of the bacilli in the tubercular processes, that the lung tissue already involved may be saved from total destruction. And finally we must prevent the multiplication of tubercles, and particularly the extension into lobes which have thus far escaped disease; for every lobe which can be kept free of tubercles, and in condition not only to perform its normal functions but to perform, as far as possible, the functions of the diseased areas, in addition to the work which falls to the lobe normally, is very necessary to recovery. Once in control of the tubercular formations, we are in position to treat the case successfully, but while they are progressive the patient is in grave danger.

The first things to do are the study of the temperature of the case and decide upon the plan to pursue as regards exercise, rest treatment, chest gymnastics, etc. I next decide upon the use of at least two nutritive preparations, and, thanks to our manufacturing chemists, we can find excellent ones made from nauseous, crude substances reduced to a state of palatableness and easy assimilation. I usually administer a petroleum emulsion and a preparation of cod-liver oil. The effects from the use of both are far superior to that from the use of either alone. By administering these preparations, and occasionally using vegetable bitters, acids and the like, to promote the appetite, administering digestive agents as required, to ensure complete digestion, and also ascertaining that the patient makes liberal use of beefsteak, eggs and milk, I am satisfied with the amount of nutrition which is reaching the system.

Aside from the use of occasional remedies to relieve symptoms as they may arise, I administer no remedies by stomach, other than those already named, but depend upon hypodermic medication for the administration of alteratives and altero-reconstructives.

In the early part of 1892 I depended upon the hypodermic use of gold and iodin to accomplish the necessary alterative and reconstructive action, but after a few months of unsatisfactory clinical use, coupled with the fact that both agents, particularly the iodin solution, were exceedingly painful, I discontinued their use, and took up a line of experiment, both clinical and chemical, which finally resulted in the following formula, as shown by actual chemical analysis. The formula shows the amount of each agent in each fluid dram of the preparation when ready for administration, the chemical compound being dissolved in sterilized oil.

℞ Iodin	gr. $\frac{1}{2}$
Bromin	gr. $\frac{1}{14}$
Phosphorus	gr. $\frac{1}{100}$
Thymol	gr. $\frac{2}{3}$
Menthol	gr. $\frac{2}{3}$

The ingredients of the above formula are not prepared in common mixture, but are chemically compounded, with the result that the solution contains no free iodin or bromin, otherwise the pain following its use would be almost unbearable. The chemical solution is of a very bright cherry color, is distinctly transparent, and its hypodermic injection is attended with even less pain than attends the hypodermic injection of a solution of morphia. A common mixture of the ingredients of the formula produces a solution which is of a dark muddy color, is not transparent, and contains both free iodin and bromin. The above formula I perfected only after three years work, and though I was able to use the compound in the latter part of 1892, it was far from being an ideal chemical compound, and its use was both painful and very irritating locally. By careful study and continued experiment, I have succeeded in eliminating, one after another, the disagreeable and imperfect features of the solution, until during the past two years I have made but one change in the formula and that the addition of menthol. In 1895 I contributed an article to the *American Medico-Surgical Bulletin* descriptive of the use of this compound which was my first on the subject, and in this article gave my results from the treatment of fifty cases of pulmonary tuberculosis, which in brief showed nearly 90 per cent. of cures in twenty-one cases treated in the first stage of the disease, nearly 50 per cent. in fourteen cases treated in the second stage, while in the treatment of fifteen cases in the third stage none were cured, though several showed permanent improvement and are alive today. My success since the publication of the article mentioned has been in every respect equal, if not superior to the results here reported, and to this improvement I attribute the action of the menthol, which I thereafter added to the compound. There is one important feature of the action of the menthol in this compound, it is given off chiefly through the respiratory organs, and soon after taking the injection many can detect the odor of peppermint in the breath, which odor is more or less noticeable throughout the day. It has been shown recently that peppermint locally, by inhalation, is a valuable agent in the treatment of tuberculosis, and by this means the lungs are constantly bathed in atmosphere of menthol, with very decided benefit to the invalid.

By the use of this compound I have found it unnecessary to use any other medication, aside from that previously mentioned, and by relieving the stomach of the necessity of assimilating drugs, which can be hypodermically administered, an important point in favor of recovery is gained, and then also, by hypodermic medication, we are positive that a definite amount of remedial agents reach the system each day. The maximum daily dose of this compound, which on account of the contained chemicals I have named "bromin-iodin compound," is one dram. The fact that the patients report daily, with great regularity, for their treatments, and regularity is a factor notoriously abused by this class of invalids in taking medicines per stomach, has much to do with my successful results.

I use a special one dram hypodermic syringe fitted with oil-caliber needles, and usually give the injections in the back of the shoulder. So little local irritation occurs as a result of the injections, that many treatments may be given in a very small area, and I have yet to find the first invalid who can not stand the mode of treatment. The permanency of the recoveries which have occurred under this treatment is another special feature of the remedy. It seems to alter the general system to such an extent, and in such manner that the tissues and fluids of the body are fortified against re-infection. If proper care is taken of the syringe and needles, there is absolutely no danger of inflammation, induration or abscess as a result of the injections, with a properly prepared compound. The compound has proved of especial value in cases of tuberculosis with hemorrhages, and in a number of cases treated no hemorrhages occurred after the first week of treatment. I have every reason to believe that the proper use of bromin-iodin compound (and there is no reason why the general practitioner can not use the compound as successfully as a specialist), coupled with the system of general management and nutritive medication herewith outlined, will, if generally used, effect a decisive decrease in the fatality which attends the ordinary treatment of this disease.

80 Chestnut Street.

A REPORT OF THE TREATMENT OF PULMONARY TUBERCULOSIS BY THE INHALATION OF ANTISEPTIC VAPORS.

Read at the Meeting of the Mississippi Valley Medical Association in Louisville, Ky., October 8, 1897.

BY GEORGE W. JOHNSON, B.S., M.D.

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CHICAGO, ILL.

The antiseptic value of drugs in the treatment of phthisis is well recognized by the profession. But how to administer them in sufficient strength and quantity to control the tubercular and septic processes has been the problem. If administered by the stomach in sufficient strength and quantity to properly saturate the lungs, the stomach and lower alimentary tract is so irritated that the digestive function is greatly deranged. Hence nature's method of controlling the disease by vital resistance is much impaired.

If introduced directly into the lungs by parenchymatous injection, so much irritation is produced that an exudate is thrown out which occludes the finer air passages preventing the introduction of the medicaments.

For two years I have had the medical direction of the Cook County, Illinois, institution. During this period I have treated a great many cases of pulmonary tuberculosis and have always given the patients the benefit of the latest researches of the profession. Each new hope has been inspired only to be soon blighted by some untoward effect. The class of tubercular patients sent to the institution are far advanced in the disease and practically considered beyond human aid. They are simply abandoned by their friends and the physician to die. The inmates of the Cook County Infirmary number from 1,500 to 2,000, and of the Hospital for the Insane 1,400. Since about Feb. 1, 1897, all the tubercular patients have been isolated as much as possible. Since June 1, 1897, 260 patients have been persistently treated by the inhalation of antiseptic vapor, while general and constitutional treatment was followed. The diet for this class is a little better than for the other hospital ward patients. The vapor used consists of eucalyptol, oil of cloves, beechwood, creosote each 10 parts and liquid alboline 100 parts.

These medicaments are vaporized by compressed air of from fifteen to twenty-five pounds hydraulic pressure to the square inch. The vapor is respired from a mask fitting tightly over the nose and mouth and for a period of fifteen minutes each morning. While taking the vapor the patient is required to breathe as deeply as possible and as near the normal number of times per minute as he can. The vapor is not at all irritating and can be easily taken by the feeblest patients. From the 260 patients taking this treatment a clinical record of 40 cases has been kept, with reference to quantity and character of sputa and microscopic examination, temperature, pulse and respiration, cough, night sweats, physical examination and body weight. These cases were selected without any special reference to their condition. A study of the clinical record of these forty cases up to this time shows fairly good results. In every case the sputum is lessened in amount and a weekly examination shows a dimunition in the number of the tubercle bacilli, great benefit is given in the relief of the dyspnea and is the first relief spoken of by the patient.

The respirations become deeper and longer, the temperature less high in the afternoon, in cases where a considerable number of treatments have been taken, the cough and night sweats are much relieved and sleep is undisturbed. Physical examination shows the lungs to be clearing up, the râles disappearing and the respiration approaching nearer to normal and in many cases, an increase in body weight.

An example of which is given in the following four cases:

Case 1.—F. S. Age 41 years. Laborer. Family history negative. Personal history: has been addicted to strong drink. Was admitted December 1896; was coughing almost constantly. Night sweats were profuse. Sputa in great abundance and teeming with tuberculi and pyogenic bacteria. He was much emaciated and very anemic. Had had several hemorrhages and the respirations were short and jerky. He was sent to the tubercular ward and treatment began, which at that time consisted of the administration of beechwood creosote and guaiacol by the stomach pushed to as much as the patient could stand. He was given a tonic of iron, quinin and strychnin three times daily. A cough mixture of carbonate of ammonia was used. Patient was confined to his bed. The diet was as stimulating as could be provided. Gastro-enteritis developed and all medication was discontinued, except the cough mixture and the tonic. He continued to fail. When the compressed air apparatus was first put in the hospital it was thought best not to give him the vapor, on account of his feeble condition. On June 4 a thorough physical examination was made and the sputa examined for tubercle bacilli, which were found in abundance. His weight was 129 pounds.

Physical examination.—The following physical examination was made September 29 and corresponds with the former save in degree. Inspection: Color normal. No pigmentation. Emaciation but not so extreme. Retraction of left side of chest with impaired motion. Supra- and infra-clavicular retraction. Palpation: No friction fremitus. Vocal fremitus not marked on either side, slightly less on left side. Percussion: Supra clavicular dulness bilaterally; slightly tympanitic note over anterior surface of chest on left side, due to lung retraction. General dulness over posterior aspect of chest. Axillary region, normal resonance. Auscultation: Respiratory murmur universally feeble, especially as heard over posterior aspect of chest. Expiration high pitched. Subcrepitant râles heard everywhere over anterior surface of chest. Vocal resonance increased bilaterally, more especially on left side. Pectoriloquy marked on left side over lower portion of lung. As ominous as this last finding may seem, this man has gradually improved and he now coughs very little, the night sweats are entirely absent, the respiration though still impaired is much improved. He has no hemorrhage. The quantity of sputa is small and the tubercle bacilli very few. In fact seven slides were examined before any were found. He feels much improved and has not spent a day in bed for two months. The P.M. temperature is two degrees less. He has taken 79 vapor treatments and weighs 133, a gain of but 4 pounds.

Case 2.—A. M. 56 years of age, Scotch blond, R. R. fireman. Family history good. Personal history: had syphilis twenty years ago. Has been coughing for two years. Was admitted May 18, 1897. At that time was so feeble that he was taken to the ward on a stretcher. Cough and dyspnea were so troublesome that he had to be bolstered up in bed nearly all the time. Had had hemorrhages and night sweats. Sputa were abundant and muco-purulent, and tubercle bacilli were found in great numbers. Weight 102 pounds.

Physical examination.—Inspection: Expansion very limited. Pigment over chest. Palpation: Vocal fremitus everywhere slight. Percussion: Dulness everywhere in greater or less degree except in axillary region. Slightly tympanitic in these regions. Dulness more marked in supra-clavicular regions anteriorly and posteriorly and over right middle lobe. Auscultation: Respiratory sounds very feeble almost completely absent over right middle lobe, vocal resonance being marked here, as well as lower posterior aspect of chest. Pleuritic friction well marked over apices, bilateral also on forced inspiration over lower extremities of lungs. Marked inspiratory dyspnea. This man has improved in all these conditions. His respirations are free. Has had no hemorrhage. Expectorates only in the morning on rising and then but very little. Four slides were examined on September 29, and bacilli were found. He has taken seventy-eight vapor treatments and has gained twenty-one pounds since the first of June.

Case 3.—C. W. 44 years, German. Family history: Father died of pneumonia. Personal history good. Has been ailing for three years but has had no hemorrhage or night sweats. Cough was bad on admission in January 1897. At that time patient was feeble and anemic and expectorated great quantities of purulent matter, which was teeming with tubercle and pyogenic bacteria. Afternoon temperature ranged from 103 to 104 degrees. He weighed 105 pounds.

Physical examination.—Inspection: Color anemic. No pigmentation. Expansion limited, almost entirely absent on left side. Left side markedly smaller than right. Left shoulder drooping. Palpation: No friction fremitus. Vocal fremitus absent over anterior surface of chest on left side, also over left upper posterior aspect; normal over right side of chest. Percussion: Left supra-clavicular region flat, infra-clavicular region dull; gradually less dull down to third rib; right supra-clavicular region dull, below this resonant to sixth inter-space. Posteriorly: dulness over supra-scapular region on both sides; dullness marked over entire left aspect; normal resonant tone in left axiliary region. Auscultation: Tubular breathing over the left infra-clavicular regions with faint moist râles. Suppressed high pitched respirations over remainder of left side and posterior aspect of chest. Normal vesicular murmur over right posterior aspect. Vocal resonance increased over entire lung surface. This man's physical condition has improved wonderfully. His temperature never goes above 99 degrees, coughs but little and expectorates scarcely any. Has had no hemorrhages and sputum is almost entirely free from bacteria. He has taken eighty vapor treatments and gained ten pounds.

Case 4.—S. D. Age 40. English, clerk. Family history: Two brothers and two sisters died of tuberculosis. Personal history: Single, habits good. Was compelled to stop work and was admitted June 8, 1897. Was anemic and emaciated, cough very troublesome; nocturnal perspiration exhausting. Was failing rapidly. Sputa contained abundant tubercle bacilli. He began to take inhalations of the antiseptic vapor at once and has persistently continued. Weight 130 pounds.

He is gaining steadily. Sputa and cough almost entirely absent. Dyspnea somewhat relieved. In all the following physical conditions he has improved.

Physical examination.—Has tuberculosis of the larynx. Color normal. Retraction of soft parts on inspiration more marked in supra clavicular regions. Left side smaller than right side. Percussion: Supra-clavicular flatness bilateral. Dulness everywhere except small area in axillary region on both sides, where a tone of hyper-resonance is obtained. Dulness more marked on left than on right side. Cardiac dulness extends about one inch to left of mammillary line reaching only to left border of sternum. Auscultation: Subcrepitant râles over apices, bilateral. Mucous râles over left lower lobe. Bronchophony marked over apices, increased elsewhere. Broncho-vesicular respiration over upper lobes bilaterally. Examination of a scanty amount of sputa on September 29 showed but few tubercle bacilli. He has taken 100 vapor treatments and gained 10 pounds since June 8.

While there has been marked improvement in the symptoms in every case, some have improved very much more than others. These were a most unfavorable class of patients to treat, being in the advanced stage of the tubercular process with hemorrhages, emaciation, night sweats, anemia and, in fact, scarcely able to breathe at all. In the absence of a specific for tuberculosis, we believe that with proper apparatus and skilful and continued administration much is to be hoped for in this class of patients by the inhalation of antiseptic vapor.

The respiratory movements so limited in tubercular patients are increased; the catarrhal condition of the upper air passages and especially in laryngeal tuberculosis is removed, thereby aiding better introduction of air into the lungs. The pulmonary air-passages are rendered and kept in a more aseptic condition thus minimizing the danger of new invasion. The alimentary tract is undisturbed by strong and irritating drugs, giving ample opportunity for the increase of vital resistance, by suitable diet and constitutional treatment.

The treatment of this class of patients by the inhalation of antiseptic vapor is both rational and practicable. For when the vapor is properly prepared and administered it is so fine and non-irritating and so intimately mixed with air that it must find its way to every portion of the lung substance that air in any form reaches.

I am fully convinced, from my short experience, that if the proper apparatus is used and the vapor not too strong, and given for from fifteen to twenty minutes twice daily, together with bitter tonics and supportive diet, great relief if not ultimate recovery may be brought to this unfortunate class of sufferers. It has been proved that when the vapor is properly prepared and administered that it reaches the minutest ramifications of the pulmonary air passages in the healthy lung. This fact being established it is no longer the question; how can medicaments be made to reach the alveoli? But rather, how soon will the therapeutists provide us with a specific for the tubercle bacilli? This done the dread malady of tuberculosis will no longer be credited with one-fourth of our mortality. That so large a number of cases have been relieved of their most distressing symptoms together with physical improvement, inspires a new hope and ambition for more thorough and extensive investigation. Any method of treatment that brings relief to the class of patients that I have treated gives bright promise for those in the incipient stage of the disease.

Orthoform in Tuberculous Laryngitis. Neumayer announces that orthoform will relieve the pain which renders swallowing difficult in turberculous laryngitis, buccal ulcerations, cancer of the tongue, etc. The substance can be insufflated or the surface painted with a 10 per cent. solution of the hydrochlorate, renewing the application as often as necessary, orthoform being non-toxic. (*Vide* JOURNAL, Vol. 29, pages 700 and 1170.)

PULMONARY TUBERCULOSIS WITH SPECIAL REFERENCE TO DIET.

Presented to the Section on Physiology and Dietetics at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

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The purpose of this paper is to set forth some practical observations acquired by direct clinical experience upon the treatment of pulmonary tuberculosis with special reference to the effect exerted upon it by a due application of certain dietary regulations.

THE NATURE OF PULMONARY TUBERCULOSIS.

Pulmonary tuberculosis is a true inflammatory process set up by a specific morbific influence in the delicate lung tissue and terminating in true ulceration and suppuration of the lung substance. I will briefly recall the anatomy of the lung. The trachea divides into the right and left bronchi. These divide again into secondary and tertiary bronchi, and the subdivision continuing, the bronchial tubes grow more attenuated and more numerous as they subdivide. They also grow more delicate in structure, and when finally they reach a minute size, they are comprised only of a thin membrane lined with pavement epithelium resting upon an elastic fibrous layer. They are then known as the ultimate bronchial tubes. Each one of these terminate in a lozenge shape islet of delicate pulmonary tissue called a pulmonary lobule. Each lobule consists of a vascular membrane in the form of a sac, from the cavity of which are numerous secondary compartments divided by thin partitions projecting from its inner surface. These minute cavities are pulmonary vesicles. Their walls are distensible and elastic, and expand and contract during the respiratory act.

These minute pulmonary vesicles are surrounded by capillary blood vessels which penetrate their partition walls. The abundant elastic tissue in the walls of these pulmonary vesicles gives to the lung its property of resiliency. These pulmonary vesicles are also called air cells or alveoli, and are largest at the apex of the lung and smallest in the interior. The aggregated mass of the pulmonary vesicles form the spongy or parenchymatous tissue of the lung.

The lung tissue is nourished by the bronchial arteries, which ramify upon the walls of the smallest pulmonary vesicles. The blood is returned through the bronchial veins. The pulmonary vesicles are supplied with lymphatics and nerves, the latter being supplied chiefly by branches from the sympathetic and pneumogastric.

The nature of pulmonary tuberculosis is an inflammatory process called into activity in these delicate structures by the introduction of a special microbe, the tubercle bacillus, which can flourish and multiply only when brought in actual contact with these sensitive and extremely attenuated membranes.

ITS CAUSE.

When this microbe has succeeded in gaining a lodgment upon the delicate pavement epithelium of a pulmonary vesicle, its specific action at once springs into activity, and this is first a congestion of the capillary vessels of the part, which is speedily followed by a true inflammation.

Succeeding this is the formation of minute masses which are called tubercle. These tubercle masses are formed in great numbers upon the delicate walls of the vesicles, and in a short time undergo a process called caseation or softening. At the same time they break down the vesicle walls, so that several pulmonary vesicles are thus turned into one.

As this softening process goes on and the matter accumulates in quantity, it is forced into the smaller bronchi, thence passes during the respiratory act into the larger bronchi, and is finally coughed up and expectorated by the patient. The expectorated matters are yellowish or greenish in color, and under a suitable power of the microscope are seen to contain great numbers of pus-cells with bacilli more or less numerous, as well as broken down lung tissue.

It is doubtful if pulmonary tuberculosis is caused in any other way except that mentioned. Heredity plays a very unimportant, if any part at all. Not all persons who inhale bacilli contract this disease. It is only those in whom a special adaptability to harbor the microbe become its victim.

The microbe has a veritable struggle for life. Its journey from the outer world through the air passages to the delicate structure of the vesicle is not without danger to itself, and hence few of them only find a successful lodgment in the pulmonary vesicles, which they must do before they can begin their baleful work. Most of thêm are arrested and die before they can reach a point favorable for their development. Only the most vigorous life and the fittest are the survivors.

ITS CONTAGIOUS PRINCIPLE.

Pulmonary tuberculosis is contagious when the bacillus is introduced from some source where it has retained its activity and virulence, and when we remember that the sputum from phthisis patients contains great numbers of these bacilli, which are distributed widely through dust and the carelessness with which sputum is voided, it will be seen that the danger from contagion is great, and it is in this way that the bacillus enters the lung by inhalation and the disease is acquired, but contagion by contact with a phthisis patient, and by inhaling his breath is very slight indeed.

ITS SYMPTOMS.

When the bacillus has invaded the lung tissue the symptoms are quickly manifested. The patient develops a cough which seems first to be of a bronchial type and is marked with expectoration of a mucopurulent character. The early physical signs are those of bronchitis, but very soon dyspnea occurs and becomes more or less severe. Respiration rises from twenty to fifty per minute, and the general distress is usually well marked.

ITS HABITAT.

The tubercle bacillus can not exert its specific poisonous action unless it finds a congenial habitat, and this is what may be called an alkaline temperament, and this temperament plays a very important part in the acquirement and behavior of phthisis. Persons who are thin, tall and anemic, and those having red or sandy hair, or light blonde hair with a thin pallid skin, pale mucous membranes and weak sexual organs, are those who are very liable to tuberculosis, very much more so, in fact, than do the darker hued or more athletic persons, or those who have the acid temperament. In these alkaline subjects the disease seems to make rapid progress, and it is in the apices of the lungs, where the pulmonary vesicles are of large size, that the disease seems to locate by preference. In the apex of one or both lungs cavities form more readily, and the disease seems more virulent than when in the middle or lower lobes, and it is these patients who are tall and pale and badly nourished, and whose blood is deficient in red globules who acquire phthisis very readily. The apices are almost always involved, and he resists treatment to a great degree. In these cases also, when the disease has made any progress, the poisonous principle of the disease, whatever it may be (ptomains, or absorbed poison from the tubercle), seems to pervade the entire body, and he has therefore diarrhea, night-sweats, hemorrhages, anorexia, thirst and mal-assimilation of the little food he takes. These patients offer a congenial habitat to the bacilli and fall before their ravages like the morning dew. They are so difficult to treat and so persistent that they seem almost malignant.

When such a weak lung or special temperament, or readiness to receive the disease is found, it becomes a ready prey to the immigrating microbe. In many cases where bacilli are introduced into the lung they are destroyed for some reason, and this reason is either an acid temperament, or an individual power to resist disease, or a failure to gain a favorable lodgment upon the thin and sensitive walls of the air cells.

ITS ECONOMIC VALUE.

It has been held that disease, and particularly tuberculosis, has a certain economic value in checking the over-population of the earth. In former geologic epochs the exuberance and over-production of animal life has been restrained and held in check by the operation of several influences. The lower orders of animal life that have been so prolific in development have been preyed upon by the higher species of animals who used them as food. Every order of animal life has found a destructive enemy in some other order, and this process of animals preying upon others has served in all geologic ages as a complete check upon the over-production of any one species.

With man, however, the case is different. There is no higher order of animal than himself to hold in check the rate of his increase. To control and repress his too great reproduction, other influences quickly sprang into action. They were three in number. 1, his own exterminating wars; 2, the fearful ravages of disease; 3, his individual vices.

Man's early tribal quarrels were very destructive and continued in activity until replaced by more fatal methods of modern warfare. These repressing influences acted with such mournful force as to seriously affect, on several occasions, the welfare of mankind. We see in the reign of the Roman Emperor Justinian, A. D. 527-565, that the influence of his wars, to which must be added the famine and disease that followed, destroyed more than one hundred million of human lives and depopulated some of the fairest provinces of the earth. This destruction caused a visible diminution of the human race.

The ravages of disease have also acted as a potent check upon the increase of mankind. As he aggregated into communities and nations and lived in close contiguity with his fellows, he knew nothing of sanitary laws and hence suffered severely from sporadic and epidemic diseases. Plague and famine so baleful in their effects were also the result of his ignorance. Tuberculosis played a malignant and destructive part, and it has been stated, destroyed one-third of all those who died of disease. Whether this special disease has any economic value or not we can hardly say, but the question is not without force when we observe closely the character and temperament of its many victims.

The individual vices of man truly have an economic value. Habitual criminals, the cruel and morbidly vicious, the drunkard with his insatiable desire for intoxicants, and the prostitute are all victims of disease, nervous and otherwise, and all lack the mental balance necessary to make them sound and responsible beings. It is from the ranks of these classes that the insane are so largely recruited, and fill our asylums with their mournful presence. When either of these classes are allowed unrestrained action to their vicious or intemperate habits, their career is brought sooner or later to an end, and the prison, the hospital or the grave removes them from the walks of the living world.

ITS OCCURRENCE IN THE LOWER ANIMALS.

In the animal kingdom certain species contract pulmonary tuberculosis more or less readily. The species that acquire this disease are those brought in contact with man, either in the feral or the domestic state. Among the feral group come first the great order of apes, which may be divided into two general classes, as follows: The cynomorpha or dog apes, and the anthropomorpha or man-like apes.

These apes have been called the catarrhine apes, that is, having a nose with narrow nostrils and a thin septum

Some years ago while visiting West Africa I spent some time on the Congo River and saw considerable numbers of baboons. They are very alert and mischieveous, live in groups of twenty or more, and are fond of the dwellings of man, where their thievish ways cause them to be regarded by the natives as a great nuisance.

On several occasions while we were hunting, a group of baboons would be seen hovering over one of their number who appeared to be unable to move. It was easy to approach, as he was too feeble to escape. Inquiring of the natives I found that the baboons were frequently taken ill with some chest trouble which was similar to that from which the natives themselves suffered. This I learned afterward was phthisis, which is not uncommon among the blacks in the lower Congo districts.

The mandril (*cynocephalus mormon*) and the magot (*macacus sylvanus*) are also frequently met with on both banks of the Congo.

In the wild and almost uninhabited country about 150 miles north of Cape Town in South Africa the common baboon is very numerous, and is a most unwelcome visitor to the negroes, who suffer from their thievish and predatory ways. They have little or no fear of man.

An English officer told me the Hottentots and negroes often contracted phthisis on their periodical visits to Cape Town, and it seemed to me that the baboons contracted the disease from the sputum of these natives, which they carelessly voided in their gardens and about their houses. This gentleman had often seen sick baboons presenting the same symptoms as the natives when suffering from phthisis.

One day while hunting in the adjacent hills I saw a baboon lying upon the ground. On my approach he made no attempt to escape, for he was extremely emaciated and had a severe and violent cough. At that time the existence of the tubercle bacillus was not known, but I felt sure that the baboon was suffering from what we now term pulmonary tuberculosis.

THE DOMESTIC GROUP.

The common ox (*bos taurus*) is so frequently affected with tuberculosis as to require the rigid surveillance of our great abbatoirs by inspectors who are appointed for this special purpose. It is no doubt true that these animals contract the disease from their long and close association with man.

The dog (*canis familiaris*), and the cat (*felis domestica*) are both very liable to tuberculosis, and this would seem an almost self-evident fact from their intimate association with man.

The duck (*anas boscas*), the goose (*anser anser*), and the domestic fowl occasionally contract this disease. It is not improbable that other animals are victims to tuberculosis, but they have no especial interest for us here. We are especially interested in those animals whose flesh and milk we consume as necessary articles of our daily diet.

ITS DIAGNOSIS.

The diagnosis of pulmonary tuberculosis is usually very plain. The presence of cough, expectoration, emaciation, diarrhea, night sweats, loss of appetite, thirst, anorexia with hemorrhages more or less severe, are nearly always present and reveal the true nature of the disease. The unfailing test is, however, the presence of the bacillus in the sputum. Without bacilli the disease is not pulmonary tuberculosis *per se*. A very early diagnosis can thus be made. The competent and careful physician has little difficulty in arriving at a true diagnosis even without the immediate examination of the sputum. He may begin treatment at once, but must examine the sputum for bacilli in order to confirm his judgment. These examinations should be made frequently during treatment, that he may know if the bacilli are diminishing and whether his patient is really recovering.

ITS PROGNOSIS.

Pulmonary tuberculosis when not modified by treatment is an extremely fatal disease. No accurate percentage of deaths can be given, because these differ with many writers, but once the disease is allowed to run its course without treatment, and especially in one of an alkaline temperament and a generally anemic condition, it is a rapid and terribly fatal disease.

TREATMENT.

We are called upon to treat a very complex disease. At the very outset we must not forget that pulmonary tuberculosis is an inflammatory disease of the spongy tissue of the lung, due to a special microbe and followed by a true ulcerative and suppurative process in the delicate lung tissue. It may be described briefly as a special ulceration in the pulmonary vesicles with an expectoration of the suppurating matters, and any treatment which is destined to cure or even relieve it, must be addressed to this ulcerating condition of the lung.

To successfully treat a disease so lethal in character and so complex in nature, it would seem that some remedy which can be introduced into the body at short intervals and for a long period of time, something that will act as an antiseptic by saturating the blood and modifying or destroying the bacillus and at the same time inflict no injury upon the organs of the patient, would appear to be an ideal remedy.

A considerable percentage of cases of phthisis belong to the alkaline temperament, and a remedy having an acid reaction would appear to be especially indicated. From experience, which has been considerable, I believe that a solution of the halogen group of salts, with the hypochlorite of sodium added in due proportion, is the best remedy to modify and perhaps cure pulmonary tuberculosis.

This remedy acidifies the blood when saturated with it, and almost immediately relieves the extreme cachexia, loss of appetite, weakness and night sweats which form such distressing symptoms. The cough which is nearly always present, sometimes distressing and even terrible, can easily be relieved by giving a mixture of iodid of potassium (10 grains) with a little sulphate of morphin ($\frac{1}{5}$ grain) and a syrup as a vehicle, or a capsule of quinin grs. iij. (.2) and pulvis opii gr. ss. (.03) may be given during the day and at bedtime.

For the hectic fever nothing is better than a capsule containing grams .26 quinin, and grams .0014 sulphate of strychnin once or twice daily.

Alcohol in the form of whisky or brandy is nearly always indicated, especially when the disease has made any progress, and when the vital powers are feeble and the pulse weak and rapid, I usually give 30 c.c. of whisky slightly diluted with plain or mineral water twice or thrice daily for perhaps a month at a time, and then omit it for a while according to the progress of the case. It can be resumed at any time subsequently. Wine and malt liquors should never be given, as they are apt to disagree with the stomach.

DIET.

Proper diet forms an essential part of the treatment of phthisis. When we are dealing with a severe and wasting disease the diet should receive especial attention. The physician must always prescribe such articles as are nutritious and easily assimilated. Meats of all kinds, fish, shell-fish and eggs may always be given. Rich soups of beef, mutton or chicken are especially valuable, and are palatable and nutritious. Puddings of the farinaceous kind with good bread and butter are also nutritious and well borne. Coffee with cream, strong tea, chocolate, milk and milk punch, may be given freely as beverages. Cooked fruits may be given cautiously, but never raw fruits, as they are apt to induce a troublesome diarrhea. High seasoning with salt, pepper, mustard and vinegar and other condiments are well borne and act as stimulants and assimilants to the digestive organs, and usually are agreeable to the patient.

I can not speak too strongly upon the inestimable value of cold water as a beverage in phthisis. We must remember that the blood is deprived of its watery parts to a large extent by the wasting action of the disease, and hence the thirst which is sometimes very great, and the hot and burning skin so often present. I always insist upon the patient drinking large quantities of cold water at any time without limit. He may drink ordinary potable water or use one of the many excellent mineral waters now so easily obtainable. Among those I like best are Vichy, Seltzer, Appollonaris, Poland Spring and the Great Bear Spring. All of these are most excellent waters, and when iced are palatable to the patient.

The daily warm bath is of great value in reducing the surface temperature. It can be taken any time during the twenty-four hours. The temperature of the bath can safely vary from 90 to 100 Fahr., or even higher if agreeable to the patient.

REST AND SLEEP.

Perhaps second in importance only to water, is rest and sleep. Phthisis is a wasting disease and the muscular power of the patient is largely lost through atrophy of muscular tissue, and any effort that is not absolutely needed is harmful. Let no restriction be placed upon his hours of rest and sleep.

In conclusion let it be remembered that a drug of an acid reaction is the one specially required, and that a wisely selected and generous diet, together with liberal potations of cold water, the bath and sleep, when prescribed by the wise physician, form the best means at our command to combat, relieve and cure the dreaded disease known as pulmonary tuberculosis.

747 Madison Ave.

ON THE DIET AND GENERAL CARE OF CONSUMPTIVES COMING TO SOUTHERN CALIFORNIA.

Presented to the Section on Physiology and Dietetics at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

BY GEORGE L. COLE, M.D.
LOS ANGELES, CAL.

When asked to contribute to this Section I recalled the fact that only a few days previously a patient consulted me who had recently been sent to this region by his physician in one of the Middle Eastern States. His doctor had told him to go to Southern California, find a place suitable to live in, receive the benefit of the climate and not waste his money on either physicians or drugs, to use his own judgment and when he thought best to return to the East. Not this case alone, but the many similar cases, impressed me with the fact that a few words along this line may result in benefit to some who may seek such a change in the future.

Imagine the responsibility thus laid upon the patient. How shall he find the place suitable for himself? How should he know where to find suitable lodgings and table? How shall he learn of the proper clothing to wear in a climate wholly different from that he has left? Most of all, how is he to judge competently of the improvement made at the end of three, six or twelve months, in order that he may know whether best to remain longer or return to his home? Because he finds himself transported from snow and ice to a scene in which sunshine and flowers abound, he immediately dons his summer clothing and succeeds in contracting a cold, if nothing worse. He takes his first day's outing in an orange grove and proceeds to demoralize his digestive apparatus by partaking of the golden fruit, unripe and unfit to eat. He returns to his temporary quarters at his hotel, to awaken the next morning in anything but an amiable mood in which to set out in search of a permanent location. His stomach upset, snuffling with a cord, he finds some pleasant rooms situated on the north side of a building. He does not notice the absence of the sun's rays from morning till night, but rather has his attention called to the "beautiful mountain view" by his would-be landlord, who is quietly reserving his sunny rooms for others more experienced in the requirements of the invalid. The patient does not notice that his room has no device for proper artificial heat, or if he does notice the fact he is promptly informed that one of those abominations in which the country abounds, a kerosene heater, will answer all purposes. In such quarters he takes up his abode and succeeds in prolonging his cold until he has a genuine bronchitis and augmenting his diet with green fruit, serves to continue the disorder of his digestive organs, until, at the end of three or six months, he concludes that his own Eastern climate, with home comforts, is about as good for him as to live here with a constant dyspepsia and bronchitis. And really he has now arrived at the proper conclusion. He begins to wonder if his lungs are in any better condition than when he came to such an abominable climate. He seeks a physician, who has no data of his condition at the time he arrived in California, but who tries to put him right in matters pertaining to location, clothing, diet, suitably heated sunny apartments and other matters pertaining to his general welfare and comfort; possibly suggesting some remedies which may tend to relieve the bronchitis and dyspepsia which he has contracted. The patient stays a month longer and returns to his Eastern home in a worse condition than when he left.

What a different picture thus presented from that of the patient who, on first going to a new section in which there is such a contrast to that of his former home, seeks medical advice and is started out correctly at the beginning of his new experience. A careful physical examination is made and recorded, so that at some later time he may be intelligently informed as to the progress he has made, and some definite reason given why he should remain longer or return to his home. By knowing his history and physical condition the physician can direct him to a suitable location. And some location well suited to nearly every individual can be found within a radius of one hundred miles from Los Angeles. Any altitude from sea level to 6,000 feet can easily be secured, with comfortable quarters, and the patient may at the same time be guided to sections varying greatly in relative humidity.

Do not misunderstand me as pleading in behalf of our local physicians for remunerative fees. It is not this. But the manifest injustice done by many Eastern medical gentlemen to their clients in this respect when sent from home has caused so much needless suffering among this class that I can not forbear a word of criticism. At the same time I commend the host of Eastern physicians who provide their patients with suitable letters to physicians who, while not infallible, nevertheless do better in guiding the patient than he can do for himself.

TUBERCULOSIS AND VINEGAR.

Presented to the Section on Physiology and Dietetics, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, Pa., June 1-4, 1897.

BY JOHN ASHBURTON CUTTER, B.Sc., M.D.
NEW YORK CITY.

The enormous amount of work done in bacteriologic lines as to tuberculin has been of such little avail as to treatment and prevention, that I have no hesitation in bringing before the Section in a few words, a record of work that has been done on other lines and to the glory of medicine in that this work has cured the desperately sick and prevented the pre-tubercular becoming tubercular.

Dr. John Christian read a Latin inaugural thesis at Jena, October, 1729, in which reference is made to the coagulation of living blood by vinegar which he says dissolves silica and poisons like viper's venom. He laid down the law, "*Causa coagulationis sanguinis est acidum.*"

In "The Relation of Alimentation and Disease," Dr. James H. Salisbury recounts his investigations made on 1,028 hogs fed with sour foods in 1858. Salisbury in the preface, page iii, says: "I had been a graduate of Albany Medical College, and in 1850 entered upon the practice of medicine. I was immediately and forcibly struck by the almost entire want of medical knowledge in regard to the true causes of disease, and by the consequent uncertainty that must and did exist as to the means of combating and curing pathologic states." Salisbury's first publication relating to foods that ferment into alcohol and vinegar and are thereby causative of consumption of the bowels and lungs was made in 1864 in the Surgeon-General's report of Ohio; this paper and the matter found in "The Relation of Alimentation and Disease" (published 1888) contain enough to show this investigator's work as to the relations of vinegar and tuberculosis; yet I believe that medicine was not wholly the chaos he considered it when he started to practice in 1850; honor to whom honor is due; honor to Salisbury for his colossal experiments in feeding hogs to death with sour foods. (I would that some of the quid nuncs in bacteriology would enlarge their ken and get away from the bacteria and study yeasts, alcoholic and vinegar.) Honor to the Europeans who recognized the souring properties of certain foods before the time of Salisbury's publications.

In the bibliography appended, much of which is from the publications of this ASSOCIATION, I show what has been done by an American writer:

BIOLOGICAL.

"The morphology of the blood in health is as follows:[28]

"*Color.*—Bright, fresh, clear, ruddy, strong. Clottings, rapid and firm.

"*Red corpuscles.*—Arrange themselves in nummulations, or are scattered evenly over the field; normal in size; non-adhesive; central depression well marked on both sides; periphery well rounded, clean-cut. Hold coloring matter firmly. Pass readily to and fro through the fibrin filaments. Appear fresh and fair.

"*White corpuscles.*—Normal in size, not enlarged by internal collections of foreign bodies. Ameboid movements strong or not. Proportion, 1 to 300 of red corpuscles. Consistence good, not sticky. Color a clean white. Freely moving at will.

"*Serum.*—Clear and free at first sight from any form. After fifteen minutes, most delicate semi-transparent fibrin filaments appear, forming a very light network in the field, which offers no obstacle to the passage of the corpuscles."

The morphology of the blood in tuberculosis is as follows:[28]

"*First or incubative stage.*—Red blood corpuscles are less in number, ropy and sticky more or less, but not much changed otherwise.

"*Second stage of transmission*:—1. Red corpuscles: Color pale, non-lustrous; not clear-cut, not ruddy. Consistence, sticky and adhesive. Coating of neurin removed. Not so numerous as in normal blood. Owing to the increased size and strength of the fibrin and the stickiness, they form in ridges, rows, but not so marked as in rheumatic blood. They accumulate in aggregations of confused masses, like droves of frightened sheep. They adhere to each other, and are rotten, as it were, in texture. 2. White corpuscles: enlarged and distended by the mycoderma aceti, or spores of vinegar yeast, that are transmitted into the blood stream from the intestines. 3. Serum more or less filled with the spores of mycoderma aceti, or vinegar yeast. These occur either singly or in masses of spores, which is the common form in which they are found, wherever vinegar is produced. The fibrin filaments are larger, stronger, more massive, than in health, and form under the microscope a thick network which is larger, stronger and more marked in direct proportion to the severity of the disease or the amount of accumulation. Besides the serum is apt to be of a dirty ash color. The sticky white corpuscles, the massive fibrin filaments in skeins, and the yeast spores alone or combined, form aggregations, masses, collects, thrombi and emboli which block up the blood vessels of the lungs soonest, because exposed to cold air, the most of any viscus; the blood vessels contract and thus arrest the thrombi and form a heterologus deposit, which is called tubercle.

"*The third stage of tubercular deposit.*—These deposits increase so long as vitality subsists in the tubercle and surroundings. When vitality ceases, the tubercle softens or breaks down. Sometimes if the process is very slow and life slightly inheres in it, the proximate tissue undergoes fatty infiltration which preserves it from readily breaking down. The morphology of the blood is the same for the second and third stages of consumption.

"*Fourth stage, interstitial death.*—The red corpuscles are thinner, paler, much lessened in number, increased in adhesiveness, stickiness and poverty; devoid more or less of neurin. The white corpuscles are fewer in number, more enlarged, often ragged and rough. Distended with spores of mycoderma aceti; more adhesive, and sticky. *The serum.*—Fibrin filaments are thickened, stronger; more massive, and more skeins of them present. The collects of mycoderma aceti are very much larger and more numerous; in moribund cases, I have seen them so large as almost to fill the field of the microscope."

PRE-TUBERCULOSIS.[19]

"The idea that diseases have periods of incubation preceding their full development accords with other facts in animal and plant biology. It is to be expected that tuberculosis of the lungs, for example, has a prestage. In fact, pre-tuberculosis exists and clinically means that the morphology of consumptive blood is present to a lesser extent than in tuberculosis, that the essence of pre-tuberculosis is in these vegetations in the blood, which coming from the fermentations in the alimentary canal, pass the barriers of the intestinal epithelia and float about in the blood stream of consumption any time during one year before the necrosis or sphacelation or breaking down of the lungs, sufficient to be detected by the usual signs, furnished by auscultation and percussion. It is evident that in such spongy bodies as the lungs small deposits may escape physical macroscopic exploration. But the microscope will detect this stage."

VINEGAR AND HOG CHOLERA.[19] [38]

"Seven years ago, my son and I independently studied hog cholera, on a large stock farm in Western Massachussets, autopsying animals immediately after death; 1, by the disease, and 2, by slaughter in early and late stages of complaint, the proprietor giving us every opportunity of macroscopic and microscopic examinations of blood and tissues of his animals, as he considered his herd doomed. We found, independently: 1, the blood morphology of tubercle and embolism; 2, tuberculosis of lungs, bowels, skin; 3, recent fibrin clots in heart; 4, partial paralysis of hind extremities; 5, paralysis of nerve centers.

"*Causation of this epidemic.*—1. Steady feeding of ensilage which is loaded with vinegar and vinegar yeast; 2, swill food brought from outside; 3, cold weather; 1 and 2, predisposing causes; 3, exciting cause."

The hog physically is much like man; man is very much of a hog as to eating food that makes swill, and hence suffers much from tubercle.

WORLD WIDE RELATIONS.

The Esquimau does not die of tuberculosis. He lives on animal food, yet for months of each year he breathes a vitiated atmosphere.

Tuberculosis ravages in the South where little good beef is eaten and instead very much of vegetable food. Some fifteen years ago a resident of Savannah, Ga., came under treatment in New York. He changed his mode of living and became a beef eater. Since that time all of his family have died of tuberculosis; he lives because of his beef-eating habits. The negro dies of tuberculosis. Causes, poor food, the mental strain of trying to reach the white man's level, and syphilis, with its grandchild scrofula, and tubercle.

Tuberculosis has ravaged in New England, especially the rural portion, with its diet of pie three times a day and baked beans, which latter, chemically, are splendid food for cattle, but for man not fit, unless cooked for many hours. Tuberculosis is now diminishing in New England because they are eating more beef and drinking more milk, although there has been very much of foolish opposition to the use of milk.

Cattle are dying in New England and other places of tuberculosis, and so long as the silo with its alcoholic and vinegary products is used, so long will farmers lose their cattle. A man imported a splendid herd from the Island of Jersey some fourteen years ago. He had a silo. He was expostulated with us to the dangers of feeding sour foods to his cattle. He persisted and all died of either tuberculosis or heart disease.[38]

The easiest way to exterminate the Indian is to give him plenty of white flour and rum. Tuberculosis always follows.

There is no "royal road" to the cure of tuberculosis or its prevention. The various tuberculin treatments are based on the principle of injecting an attenuated dose of poison into the human system and—this poison, like strychnia and many other drugs, stimulates nature and in some lines by inflammation to cure the diseased lungs and joints. One that has been afflicted with cough, weakness, emaciation, pain and dread of impending death, would only too eagerly accept such a treatment, yet in its very best it only effects results, it does not touch causes, and when one sees men like Robert Koch wrestling on this line, while lives go out because they will persist in ignoring the causative relations of vinegar and vinegar yeast to tuberculosis, it makes one wonder at this neglect of general principles. So long as the cause is being put in the system, so long will tuberculosis continue, and it is strange that these followers of Koch also ignore the positive relations of syphilis and scrofula to consumption. As far as I can learn the majority of medical men are using, as a basis of their treatment, animal food, but why should they gravitate to the other side and give the causes of the disease, to-wit, fermented milk foods, such as kumyss, etc.. pastry, starches, sugars, vegetable foods of many kinds, that can not digest, because of the weakness of the bowels, salads that soon make swill, jellies and colloids, to name no more. These same men also neglect the value of the study of the morphologies of the blood, sputum, feces and urine, as laid down by American observers.

At whose door shall be laid the blame of the ignoring of the incalculable value of the diagnosis of the pre-tubercular state, which diagnosis can be made before the lungs are affected, and before there is any sputum to find bacilli in or diseased spots in the lungs for tuberculin to re-act on? This knowledge of the pre tubercular state is of the greatest value to humanity of anything in the practice of medicine.

The Dr. Cyrus Edson treatment was based on so-called logical grounds as to certain relations of carbolic acid to the human body in tuberculosis, yet he adds pilocarpine to his remedy to stimulate white blood corpuscle activity. He therefore indirectly recognizes the presence of vinegar yeast in the blood and that anything which helps the action of white blood corpuscles will help the patient for a time. Why not put the ax to the root of the tree, and stop the formation of this vinegar yeast in the blood?

Some Europeans are now using raw beef. Why they do not give their patients broiled beef, I can not understand. Raw beef is unpalatable, it promotes tape worm. The use of beef is the bottom principle in the treatment of tuberculosis, but it should be employed in the form of steaks or roasts, or the first-class top of the round freed from connective tissues by machine or knife and chopping bowl, as the connective tissues are of a colloid nature, and ferment, and tend to the production of vinegar yeast. The lean muscle pulp is then molded into a cake, an inch and a half deep, several inches wide, not too tightly pressed together, and in all of its preparation care should be taken to touch as little as possible the meat direct by the hands as the human animal heat will change the character of the muscle pulp; broil this over a bed of good live coals, a gas stove, or even kerosene flame, turning often, and the resultant should be of a dark brown color on the outside and of a reddish but not raw appearance inside. It is best served on a hot water plate and if a little under-done, it will cook on the plate when the meat cake is opened. If a hot water plate can not be obtained, one can be extemporized by the use of a soup plate filled with hot water on which is placed another plate with the meat. There can not be too much care used in the buying of the beef or its preparation and if proper caution is taken, the patient will generally eat it with a relish. It should be seasoned with pepper, salt, butter, Worcestershire sauce, horse-radish, lemon juice, as the patient desires.

Lamb, mutton, the dark meat of fowl and game; broiled cod-fish can be used, as changes; the whites of eggs dropped in boiling water and slightly cooked may be taken freely if the patient is not eating enough of solid food. Some patients will take the whites of from one dozen to two dozen eggs in a day when weak and not able to take other food. Don't do as one woman did: she gave her husband the whites of eggs dropped in boiling water with plenty of vinegar. The masses of vinegar yeast in the blood were so large and frequent under the microscope that amazement was expressed. The woman protested that she was doing everything absolutely according to order for her husband. As all of his symptoms were worse and because of this blood morphology of the masses of vinegar yeast, it was insisted on that some error was being made and it was ascertained what she had done.

Vegetable food may be added as follows: Some patients can bear one of the following foods at a meal—cracked wheat, rice, hominy, toasted entire wheat flour bread, baked potato. It is a hardship at the best to confine patients to close diet and physicians should give them as much variety as possible, but there is more danger of error on the one side of too broad a diet than one of too narrow. The use of distilled water or some good spring water that has not more than five to ten grains of salt to the gallon should be persisted in, drank (after boiling) at a temperature of from 100 to 120 degrees Fahr. one hour before each meal and on going to bed.

Medicines should be employed in the treatment of tuberculosis on principles and the main one is give no medicine which can ferment into alcohol and vinegar in the alimentary tract. This principle forbids the prescribing of many cough syrups and other preparations now largely used.

The skin in tuberculosis is more or less loaded with the vegetations of vinegar yeast. There should be employed daily sponge baths. The water to be hot or cold according to the patient's desires. Ammonia and water in the proportion of two teaspoonfuls to a pint or the aromatic sulphuric acid one teaspoonsul to a pint or even the nitro-muriatic acid, one-half teaspoonful to a pint, can be used with great advantage; rubbing with a saturated solution of spirits and salicin is a good means of toning up the skin and the whole body.

Bacteria or bacilli are babies of vegetations which have become animalized by contact with the human body and human secretions. Robert Koch demonstrated their presence in the sputum of tubercular cases, for which he should receive due credit, but the work which antedates his in time and importance as showing the real couse of tuberculosis must not be ignored. The vinegar yeast found in the blood is the second stage of the bacteria, and is found there in the spore form and sometimes in tubercular cavities we get the third stage of development in the aerial filaments of the vinegar yeast.

Physicians could learn more as to relation of sour foods to tuberculosis in a few months time by experimenting on hogs (not guinea pigs or rabbits), by feeding a certain number with sour and a certain number with sweet foods, having all in the same building so that they breathe the same air. The beauty of this kind of work is that one can kill the animals any time one pleases and know just what is going on.

The agricultural experiment stations of the different States are fully equipped to make these investigations on hogs. It is necessary, however, that the microscopist who follows the experiments should have a fair working knowledge of the methods of the American observers who have been studying this subject for nearly thirty years on their patients and with animals. If it is right to rush abroad to Berlin to study cured cases of tuberculosis, some of whom die the day after they are pronounced cured, there can be no harm in studying in America, all the work which made cured cases twenty-five years ago, for such cases are living now.

PROGNOSIS.

Granted a recognition of the relation of vinegar to tuberculosis, the prognosis can be more definitely made out, for if one is stopping a cause then one has some hope to base his belief of cure on. If one is simply treating results according to tuberculin methods and is still putting in the food which will undergo vinegary fermentation, the prognosis must necessarily be doubtful.

What is the experience of those who recognize the relation of vinegar and tuberculosis? Temperament here comes in. Some of the most appalling cases with many hemorrhages, with the evidence of cavities in both lungs unquestioned, as determined by physical examination of the chest and by the detection of the elastic and inelastic lung fibers in the sputum, have progressed most favorably under proper treatment. Others, who apparently had little disease, went down to death. The rule has had to be laid down that all cases except the moribund should have a chance for treatment. It is a most wonderful thing how nature endows these cases with hope. Some patients fight indomitably, and contrary to expectations they get well. It is not pleasant to look back and consider the amount of opposition which was placed in the path of those who twenty-five years ago were endeavoring to help these distressed patients.

But what will you do with cavities? The post-mortem evidences of many morgues and dissecting rooms show unquestionably that cavities do heal over and patients live to die of another complaint. My own wife showed three small cavities healed in the top of the left lung and two in the right. There was some fatty and calcareous degeneration going on in the base of the left lung; liver somewhat enlarged but normal in structure; no tuberculosis of stomach or bowels; heart normal in size and as to structure; yet all her symptoms for three years had been of heart exhaustion, needing the greatest of care and attention. Seven years before her death an eminent medical man stated that she had but three months to live; if her appetite for beef foods, and in fact for practically all other foods, had not failed three years before her death, she would probably have lived to old age. Of great courage, good judgment, she in her weakness for many months traveled close to the verge of the grave. Of strong affections, her love for her dear ones kept her alive a long time; yet something in her nervous system broke down as to appetite and her time eventually came.

It is cruel to take away from the very sick hope. There are many doctors of eminence and influence who literally are executioners because of their brutally taking away all hope. The passionate, anxious, eager holding on to life of the very sick is a matter of divine origin, and I do not propose to stand in the way of that divine gift of the desire for life.

Some patients die from money troubles. Others die from the long-continued opposition of their friends, relatives and medical men to treatment. It can be thankfully said that this opposition is dying out. Others die because they are associated in herds at the various resorts in the mountains of the South and West, and in sanatoria seeing and hearing the consumptives all about them. Such suffer for the privileges of home. They have many comforts taken from them and are liable in going South, of getting into a blizzard and have to live in a shelter which is improperly made.

I wish to emphasize that the treatment of tuberculosis must depend upon the family physician. It should commence in infancy; the children should be properly fed and taught to avoid sweets and the vegetable foods which do not agree with them, and those who are so unfortunate as to break down with the disease must still be kept at home, or such change of air and climate made as can do good and no harm. There is no question that good air is a wonderful thing, yet we can buy oxygen and force the air alimentation if necessary in our cities.

PARTIAL BIBLIOGRAPHY.

[1] Treatment consumption by animal food. Boston Journal Chemistry, January, 1876.

[2] See same, November, 1879.

[3] See Michigan Medical News, Detroit, November, 1879.

[4] Ditto, April 10, 1880.

[5] Transactions American Medical Association, 1880; contributed histories of seventy cases in one-third of whom disease apparently permanently ameliorated: this conclusion borne out by lapse of seventeen years as far as now known.

[6] Tubercle parasite. Am. Med. Weekly, May 1882.

[7] Feeding against the appetite. Medical Register, Philadelphia, April 2 and 9, 1887.

[8] Food versus bacilli. Open letter to Dr. John A. Cutter, my son, with answer. Virginia Medical Monthly, Richmond, December, 1888.

[9] Vinegar and vinegar yeast. Times and Register, Philadelphia, July, 1889.

[10] Food and tubercle. International Med. Congress, Berlin, 1890.

[11] Feeding in the wasting diseases. Joint report to Committee of Dietetics of Am. Med. Association, 1890, with Dr. John A. Cutter, Journal of Amer. Med. Association, July 26, 1890; Med. Bulletin, June, July, and August, 1890; N. E. Med. Monthly, August, 1890; Pac. Med. Jour., August, 1890; Southern Practitioner, July and August, 1890; Virginia Med. Monthly, June and July, 1890. On (I) Consumption, one hundred cases; (II) Bright's disease, fibroid tumor and cancer; (III) Male neurasthenia.

[12] Ameboid movements of the white blood corpuscle, Boston Journal of Chemistry, June, 1876.

[13] Hog Cholera; its cause known. Western Rural, March, 22, 1879.

[14] Morphology of diseased blood. Southern Clinic, March, 1879.

[15] Tolles' one-seventy fifth inch objective; its history, uses and construction. Am. Journal of Arts and Sciences, New Haven, August, 1879; Scientific Am. Supplement. Translated into French, and published, Journal de Micrographie, Paris, 1879.

[16] Some details as to Tolles' 1-75 objective. The Amer. Monthly Microscopic. Journal, August, 1895.

[17] Primer of the clinical microscope. Virginia Med. Monthly, August and September, 1879. Pamphlet.

[18] A new physical sign of the pretubercular state. Ready since 1877. Illustrated.

[19] Pretuberculosis. American Monthly Microscopic Journal, May, 1895.

[20] Leavens and Man. Written by invitation of, and for, the Philosophical Society of Great Britain, 1884. Many original illustrations.

[21] Morphology of syphilitic blood. Am. Journal of Dental Science, October, 1879. Reprint.

[22] Food as an esthetic, chemic, physiologic, pathologic, and therapeutic. Am. Journal of Dental Science, January and February, 1880.

[23] Abnormal entozoa in man. Virginia Med. Monthly, February, 1881.

[24] Use of the microscope in consumption. Diagnosis of necrosis and disintegration. First paper. Journal of Microscopy, Phin's, September, 1881.

[25] Second paper. Necrosis of lung. Differential diagnosis. Am. Journal of Microscopy, Phin's, 1882.

[26] Tubercle parasite. Editorial. Scientific American, June, 2, 1882.

[27] Ice morphology. Scientific American Suplement, 1885.

[28] Partial syllabic lists of the clinical morphologies of blood sputum, feces, urine, foods, clothing, soiled, etc. Book. Published by author, 1888.

[29] Use of the microscope. Book, not published. 1874.

[30] The esoteric beauty and utility of the microscope. The Journal of the American Medical Association, May 7, 1892. The Microscope, January, February and March, 1892.

[31] Note on consumption. Philadelphia Med. and Surg. Reporter, May, 1881.

[32] Uterine disease sometimes called consumption. Transactions Medical Association of Georgia, 1880.

[33] The therapeutic drinking of hot water: its origin and use. Am. Med. Weekly, Janury 8, 1883; Druggists' Circular, August, 1883; London Lancet, September 15, 1883. Journal d'Hygiene, October 25, 1883; Therapeutic Gazette; Scientific American; Constitutionnelle and the medical and secular press of Paris.

[34] Colloid disease. Alabama Med. and Surg. Age, March 2, 1889.

[35] Under what circumstances do the usual signs furnished by auscultation and percussion prove fallacious? Boylston Gold medal prize essay, 1857.

[36] The American blood test for cattle tuberculosis. The New England Medical Monthly for July, 1896; American Monthly Microscopic Journal, 1896.

[37] Medical food ethics: now and to come. Secretary's address before Section on Physiology and Dietetics, Amer. Medical Association, 1892. The Journal of the Association, 1893.

[38] Reprint 1897, food and tubercle. Transactions Tenth International Medical Congress, Berlin, 1890, Band Abtheilung v, p. 30. The present excerpt being an addendum to the original 1890 article.

[39] Prevention medicine and tuberculosis. The Journal American Medical Association, 1897.

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SATURDAY, FEBRUARY 5, 1898.

MEDICAL LEGISLATION.

We wish to call the attention of our readers in the first place to Professor Welch's article in this issue, which in detail sets forth the reasons why the "Antivivisection bill" now pending in the Senate and known as the "Gallinger bill" (Senate 1063), should be strenuously opposed by every physician.

Professor Welch says truly that medical and scientific men have never had adequate opportunity to present arguments against the bill before the committee. The aim of the bill is to abolish animal experimentation altogether, and that concession now to the antivivisectionists whereby this bill would be allowed to pass, would be a fatal mistake and so handicap physiologic and therapeutic experimentations that further advancement would be almost out of the question.

He denies the statements in the committee report that any considerable number of medical or *bona fide* scientific men have favored the bill, and very easily disproves the claims that animal experimentation has been of no value to medicine. He further says that scientific experiments upon animals have not been conducted with cruelty, and states that no single instance of cruelty on the part of a scientific experimenter has been proved or set forth. He says that in England physicians there at first yielded to the passage of a similar bill and are now confronted with the fact that it is practically impossible to conduct proper experiments in that country, and even such men as Lord Lister are obliged to go to the Continent to perform ordinary experiments.

We must therefore continue to urge upon the members of the Association and readers of the Journal generally that they send personal protests to their Senator and Representatives, otherwise this most injurious and fanatical measure may pass the Senate.

In the matter of the Public Health Bill, the Association Bill has been introduced by Senator Spooner of Wisconsin. It has been thought wise to change the title from "Department" to "Commission" of Public Health, which in effect means the same thing. We regret to say, however, that the bill which was introduced on the 27th of January, has (according to press reports) without conference or without consultation with anybody been reported unfavorably with unseemly haste by Senator Vest, who recommends instead a Marine-Hospital bill which was originally introduced by Senator Caffery, and to which we referred last week. It seems that Mr. Vest reported this bill favorably on the 19th of January last, but the favorable "report" consisted in striking out all the original Caffery bill after the enacting clause and giving the Marine-Hospital Bureau, under the Secretary of Treasury, authority to perform all sanitary matters throughout the United States, in case of epidemic riding rough-shod over every board of health or municipal authority which might possibly stand in the way. Both bills now go to the Senate calendar, the bill prepared by the American Medical Association and American Public Health Association with an unfavorable report, and that by the Marine-Hospital chief with a favorable report.

Every effort must be made to defeat this Caffery bill, Senate No. 2680, if the medical profession are not to be entirely overrun by this action of the Marine-Hospital bureau. If this arrogant scheme succeeds there is no longer any use for State or municipal boards of health. The Marine-Hospital Service will perform their duties for them, notwithstanding the fact that no medical man outside of this organization, or any medical society or set of medical men whatever, has asked for so sweeping a measure or one so contrary to all previous enactments in relation to the public health. The text of this despotic measure will be found in the public health column of this issue. If there be a State board of health in the Union or a municipal board of any consequence that does not fight it, we shall be very much mistaken.

Work hard and earnestly for the Association Bill as introduced by Senator Spooner and may success crown our efforts!

THE ANOMALOUS, BRANCHING AND ACTINOMYCOTIC FORMS OF THE BACILLUS OF TUBERCULOSIS.

In the two first editions of "Les Bactéries," 1883 and 1886, by Cornil and Babes, branching forms of the tubercle bacillus are described and figured. These bacilli were derived from old cultures.

In 1888 Nocard and Roux,[1] and Metschnikoff,[2] each described in the cultures of avian turberculosis kept at high temperature the formation of capsules and curious rarefied and swollen forms. METSCHNIKOFF has also seen that the tubercle bacillus situated in the interior of giant cells can surround themselves with thick capsules, and BABES has described various forms of granules, metachromatic corpuscles, vacuoles, clubs and branching organisms, and their relation to the bacillus of tuberculosis.

FISCHEL[3] and COPPEN JONES[4] maintain that the bacillus of tuberculosis is not a bacterium but a fungus of a higher type, because it may present ramifying threads, clubs and metachromatic corpuscles. They are inclined to urge that it could be placed side by side with the actinomyces, because it may form a mycelium when it is deprived of air.

These ramifications are genuine branches. COPPEN JONES found, in the sputum, anomalous forms of tubercle bacillus that corresponded exactly in structure to the club-shaped masses characteristic of the actinomyces. In this connection it is interesting to recall that the lesions produced by the tubercle bacillus and by the actinomyces are closely related, both being classed as infections granulomatous processes. Furthermore, that the patients affected with actinomycosis react more than others, except the tuberculous and lepers, to the action of KOCH's tuberculin, showing, it would seem, an analogous composition of the substances that produce the reaction in the patient's body.

BABES[5] established that the club-shaped masses of actinomyces are formed by a secretion of the terminal extremities of the ramifying filaments. They constitute a sort of capsule and appear to play the rôle of protection for the organs of reproduction. BABES has also shown that the filaments of actinomyces are stained a bluish violet by GRAM's method, while the club-shaped masses are stained red by a solution of safranin and anilin oil, followed by the action of LUGOL's solution.

MARPMANN[6] found, in a sputum very rich in normal bacilli, bacilli with club-shaped thickenings with distinct branchings, and also a few rather long threads. He observes that the tubercle bacillus belongs to those fungi which form true cellulose in the cell protoplasm and which give the reaction for cellulose. Such bacteria are, so far as known, all aerobic. Cellulose is not formed in anaerobic cultures.

FRIEDRICH[7] succeeded in finding branching forms of the tubercle bacillus in the midst of the tissues, in cases of rapid experimental miliary tuberculosis. He produced such disease by injecting into the arterial circulation from the carotid artery of rabbits tubercle bacilli in physiologic salt solution. The animals died in from twenty-four to eighty-six hours, and th miliary tubercles were then found in the majority o the organs. When the tissues were stained by the usual methods (EHRLICH, ZIEHL, NEELSEN) the bacilli did not present any unusual appearance either in regard to form or arrangement. In the cas of the animals which died during the first thirt days after the injection, the author succeeded in demonstrating the bacilli in the tissues arranged in a radiating form and provided with clubbed ends such as are characteristic of actinomyces. He succeeded in finding all these ends by means of staining with Victoria blue, differentiating with acid alcohol, and then staining with a solution of eosin and water. Because these peculiar forms appeared to be characteristic of the first stages of the disease, FRIEDRICH is inclined to believe that the view that the clubs observed on the actinomyces are degenerative forms, is erroneous.

BABES and LEVADITI[8] injected into the meninges of the brain of rabbits pure cultures of tubercle bacilli of slight virulence. They found that two or three days later the bacilli had formed undulating threads and filamentous masses, surrounded by polynuclear leucocytes. At the beginning of eight or ten days the filamentous masses were found presenting radiating peripheral terminations. Such masses may have a diameter of from 20 to 80 micromillimeters. They are constantly surrounded by a zone of polynuclear leucocytes containing a few typic bacilli. About a month after the inoculation the filamentous masses were found to have acquired a diameter of from 40 to 80 micromillimeters and that they were very much like grains of actinomyces, the center being occupied by a substance which stained rose-red by EHRLICH's method and in which were again recognized a network of threads of the thickness of the tubercle bacillus, and from this central network projected free ends, sometimes a little thickened, at other times assuming a distinct club shape. By GRAM's method the mycelium could be stained a violet blue, the club-shaped masses red by means of anilin oil, safranin and LUGOL's solution (like the actinomycetes). GRAM's method alone gave an isolated stain to the mycelium. The various pictures obtained are reproduced in the plates that accompany the article. The authors think it is not impossible that one may some day find that some of the apparent forms of human or animal actinomycosis are produced by the bacillus of tuberculosis, because they can not understand why such conditions may not at some time or other be produced, as they produced experimentally in their actinomycotic form of tuberculosis. It should not be neglected to examine cases of actinomycosis by the methods which are usually applied to

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[1] Annales de l'Institut Pasteur.
[2] Virchow's Archiv, 1888, p. 63.
[3] Morphol. u. Biol. des Tuberkulose-Erzeugers, Wien, 1893.
[4] Centralbl. f. Bacteriologie, xviii, 1, 1895.
[5] Virchow's Archiv, 1886.
[6] Centralb. f. Bakteriologie, xxii, 1897.
[7] Deutsche Med. Wochenschrift, 1897.
[8] Archives de Médecine Expérimentelle et d'Anatomie Pathologique, ix, 1897.

he tubercle bacillus. When one takes into considera-ion the composition and the form of these peculiar growths of the tubercle bacillus it becomes necessary to bear in mind the advisability of placing this bacillus in the same group as the actinomyces, that is to say, in a family intermediate between the bacteria and the *ascomycetes*. Hayo Bruns[9] proposes to call the bacillus of tuberculosis the myco-bacterium of tuberculosis, because of the occurrence of branching forms.

VITAL STATISTICS OF THE ELEVENTH CENSUS.

"Part I of the Report on Vital and Social Statistics in the United States at the Eleventh Census, 1890" has just been received from the Government Printing Office by the Superintendent of Documents, Department of the Interior. It is a large quarto volume of nearly 1100 pages handsomely illustrated with colored maps showing the distribution of mortality during the census year. The rates are presented and discussed by Dr. J. S. Billings, Deputy Surgeon-General, U. S. Army, retired, as expert special agent on the subject of vital statistics. The data used in this voluminous report differ in completeness and accuracy according to the locality in which they were gathered. In a large part of the country the only record of deaths to be had was that obtained by the census enumerators as the result of inquiries in each family and this is considered to be deficient by from 20 to 50 per cent., but from the States of Massachusetts, Connecticut, New Hampshire, Vermont, Rhode Island, New York, New Jersey, Delaware and the District of Columbia and from a large number of cities outside of these States fairly complete records were obtained from the local health authorities. The death rate for the whole country was 13.94 per 1000 living, but for the States and cities having a good system of registration it was 20.38. In the latter the rate of the urban population was 23.48, of the rural population 15.66. In the non-registration areas the enumerators gave a death rate of 10.86 per 1000 as compared with 13.42 in 1880, whence it is concluded that either the healthfulness of the country has increased or that the enumerators' returns, as regards deaths, were less complete in the eleventh census than in 1880.

The death rate of males was generally higher than that of females, 21.54 as against 19.25 per thousand. The excess of male deaths occurred chiefly at the earlier ages. The death rate for white children under 5 years of age was 64.21; highest in the metropolitan district, 88.48; lowest in the rural districts of the registration States, 36.72. For colored children of the same age the rates were much higher, varying from 56.48 in the rural sections to 151.60 in the metropolitan district; and in all localities the male death rate was higher than the female. The deaths of children under one year of age gave an infantile mortality of 115.65 per 1000, still-births being included in the births and deaths. Were the still-births excluded the infantile mortality would be 97.60. In the registration areas this mortality was 182.25 or higher than in Great Britain and Ireland, Denmark, Sweden, France and Belgium, but lower than in the Netherlands, Italy, Switzerland, Prussia, Saxony and Bavaria.

The death rate of the colored population in the registration area was much higher than that of the whites, 32.40 as compared with 20.22 per 1000, the excess of mortality being most marked in the younger years.

For the married in the registration area the death rate for those 15 years and over, taken as a whole, was higher than for the single in the same age group, and was higher among males, 16.66, than among females, 13.42. If, however, the age group 15 to 45 years be taken, the death rate of the single males, 9.29, was higher than that of the married males, 8.95, while the death rate of the married females, 9.63, exceeded that of the married males and also that of the single women, 6.79. In the age group 45 to 65 years the death rate of the single males, 31.29 was much higher than that of the married men, 19.83, and the death rate of the single females, 22.0, exceeded that of the married women, 16.80. Many statistics in this connection show the relative death rates from various diseases, according to age and conjugal condition. Then follows a section on occupation in relation to death. The highest death rate occurred among the laboring and servant class in cities, 25.15; the lowest among the clerical and official class, 7.69. The rates for certain trades and occupations were higher than the average male rates for the same ages. The persons subject to these high rates were musicians and teachers of music, apothecaries and pharmacists, butchers, bakers, confectioners, barbers, bookbinders, plasterers and whitewashers. For all other occupations the rates were lower than the average. Among males in the professional class of occupations in the registration districts the death rate per 100,000 of their number from diseases of the nervous system, 250.70, was higher than the average rate, 158.96, from these diseases in all selected occupations. The rate for diseases of the respiratory system was also higher, but that for consumption was considerably lower. The death rate from suicide was higher in this than in other classes. There was no death among physicians and surgeons under 25 years of age in the registration States during the census year. The death rate of medical men from 25 to 45 years, 9.52 per 1000, was slightly above the average rate of the professional class at this age, 8.47, as was also the rate at 45 to 65 years (physicians and surgeons 21.15, professional class 19.11), but the death rate at 65 years and over, was much higher than the average of the professional class.

In fact, this census report contains a mass of information under the heading "Occupation in Relation to

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[9] Centralb. f. Bakteriologie, xvii.

Death," sufficient to provide trade journals with interesting paragraphs for many a week to come. The influence of season and locality are then discussed, but the greater part of the volume is given up to a study of the causes of death. This report will be valued highly by those interested in sanitary questions concerning deaths and death rates.

PHTHISIS AND INSANITY.

The close relations of tuberculosis to insanity have been matters of observation and comment since the days of Esquirol and Georget and the other early alienists of the modern period. The fact that the mental symptoms of phthisis were notably characteristic had also been still longer a matter of common observation and naturally assisted in calling attention to these relations and suggested a direct connection between the two. When more recent clinical studies had shown that tuberculosis was not only exceedingly common in the insane, but that a hereditary tendency to the one was often associated or alternated with that to the other disorder the relations of the two became still more striking and suggestive.

In former times, not so very remote, the mortality from tuberculosis among the insane exceeded that for almost any other complication; a distinguished French authority reckoned that at least one-third of the deaths were to be attributed to lung affections and usually to this one. Within very recent times, Clouston, who is certainly a good authority on this subject, estimates that while the mortality from this cause has been greatly reduced, under the best conditions, the proportion of the insane in asylums who die from tubercular lung troubles is still three times as great as that of the average population outside. How much of this discrepancy is due to the general lowering of resistance to the disorder, to trophic debility from the as yet imperfectly understood brain abnormalities of the mental disorder and how much to the enforced sedentary life and to the congregation of the inmates, many of whom must be necessarily infected, is uncertain, but that both of these factors are in play is more than merely probable. Asylums or hospitals for the insane are almost inevitably overcrowded, at least that is true of the public ones; their inmates are notoriously neglectful of sanitary rules and even the utmost care by physicians and attendants can only partially compensate for these unavoidable drawbacks. Under such conditions it is only remarkable that in times past, before the infectious and contagious nature of phthisis was recognized, all our asylums were not perfect hotbeds of the disease, and that any other affections had a chance to figure to any extent in their mortality statistics. It is only within late years that special infirmary wards have been the rule or at least common in asylums; the consumptives are not yet commonly isolated; the prevention of the spread of the infection is seriously embarrassed by the mental conditions and habits of the patients, and yet ordinary attention enlightened by a better knowledge of the nature of the disease, has probably reduced the mortality from this cause by one-third or one-half. That in the former times of our ignorance the tuberculous death rate was no greater than it was and that even remarkable recoveries took place and postmortems revealed in old chronic cases the cicatrices of cured tuberculosis, goes far to make one believe in a general comparative immunity or the non-malignancy of the infection. It has been proposed by some zealous sanitarian alienists to build isolation wards for consumptives apart from the ordinary wards or the infirmaries, and thus to stamp out or absolutely prevent the spread of the disease. Apart, however, from the reluctance of authorities to appropriate funds for what does not appear to them imperatively necessary, there is some question whether such provisions would be as effective as anticipated. Tuberculous disease is not as readily discoverable in the insane as in the sane; many of the characteristic symptoms are apt to be wanting, and the condition may be far advanced before recognition, even by a careful physician. Inasmuch as postmortems show that one person in every four or five has been affected with tuberculosis at some time or other, it seems probable that such isolation wards would only receive the well-marked cases, while less obvious cases would be constantly being received and circulating amongst the other patients. The possibility of infection may thus be still almost as great as ever, and probably even greater, from the false security preventing the watchful care on the part of those in immediate care of the patients not thus isolated. However desirable such accommodations may be, they are not an absolute security, and much can be done without them by the use of the ordinary sanitary precautions especially applicable to this disease.

Whether there is a special form of insanity caused by tuberculosis may be questioned by some, but it appears to be the experience of alienists that a certain type of suspicious melancholia is most frequently associated with this disorder. In paretics also, with whom the delusions are so generally of an expansive nature, they are apt to take on a melancholic type when associated with consumption. The exact relations of the insanity and the tuberculosis are not altogether clear; the mental disorder usually, according to Clouston, antedates the other, but the latter can be often foretold by the character of the insanity. The prognosis of the mental disorder in these cases is not as good as when uncomplicated by phthisis, while the restoration of mental soundness is sometimes apparently facilitated by the lung disorder in cases of the expansive type of insanity. It would appear that this special depressive type of mental disease either par ticularly favored the outbreak of phthisis or that it itself was often an early symptom of latent tuberculosis. Whichever of these views is accepted, the fact of their apparent relations is interesting and suggestive, and the designation of phthisical insanity appears to be warranted in the classifications.

The fact of the so frequent common heredity of phthisis and insanity, already referred to, affords another ground for suspicion of their close relations. CLOUSTON indeed believes that a combined heredity of the two is more perilous as regards the probability of either disease than the same of either one singly. That is, he holds that a person with one parent tuberculous and the other insane is more liable to both insanity and consumption than one who has both parents suffering from one of these two disorders.

As an evidence of the improvement that has taken place of late years in the asylum mortality from pulmonary tuberculosis, the statistics of seven American hospitals taken without special selection for a period of ten years, from 1888 to 1897 inclusive, gave a mortality of 22 per cent. Taking out one of these with the highest mortality from this cause the percentage was 17. Six American hospitals similarly taken, of which only the figures for 1897 were available, gave a percentage of 13.7, while withdrawing one of these with the exceptional percentage of 57.69, the mortality from phthisis of the remaining five was only 9.4 per cent. of the total deaths. It seems entirely beyond question that tuberculosis, even under the comparatively unfavorable conditions afforded by the insane in hospitals as at present managed and equipped, is to a large extent a controllable disease.

CORRESPONDENCE.

The Apothecary.

CHICAGO, Jan. 15, 1898.

To the Editor:—Several of my medical friends have called my attention to an article in your issue dated Dec. 15, 1897, under the heading "Is the Apothecary Shop Doomed?" Whoever wrote said article seemed to be under the impression that such is the case, but being an apothecary shop-keeper myself, I beg to differ with the gentleman. Facts will not bear him out and I hope to be able to explain that the apothecary is still alive and as long as there are physicians there will and must be pharmacists.

Twenty-five years ago, when I entered the pharmaceutic field, matters were widely differently from what they are today. The average druggist, as we called them then, had no education, merely a training. The boy started in some drug store by washing bottles, scrubbing the floor and other manual work. Gradually he worked his way behind the so-called prescription counter and within a few months' time he emerged a full-fledged pharmacist. Education at that time was not compulsory; there were no pharmacy laws, no board of pharmacy, etc.

Matters are widely different today. The law, as faulty as it is, has accomplished a good deal. The boy who enters the pharmaceutic field must show some qualifications or he can not register as an apprentice. When through his apprenticeship he must either attend a respectable college or take up his studies at home, as he must go before the board of pharmacy and pass an examination as registered or assistant registered pharmacist. He can not serve as clerk or manager or proprietor except he has given proof of a thorough knowledge of materia medica, chemistry, botany and all the branches connected with pharmacy. So you find him fully prepared to enter the pharmaceutic field; years of practical and theoretic learning have been spent, but what does he really find? Any number of physicians who are not able to write a prescription, machines who are merely acting as figureheads for the so-called "manufacturing pharmacist or chemist." They write for patent nostrums, articles they do not know themselves, they merely take the manufacturers' word for it. For instance, he specifies pil. rheumatic (Jones), not even knowing the different ingredients, merely knowing Mr. Jones, a large manufacturing chemist, as more able to prescribe than himself. If you ask the doctor why he prescribes such stuff he merely must acknowledge Mr. Jones' agent had talked him into it. This is the advanced age of medical profession and what the apothecary finds when he enters on his duties. Who lowers the pharmaceutic profession? Nobody but the physician, He uses Jones' tablets because they are handy and cheap and principally because the agent has assured the physician they will cure any ill from a headache down to a corn. If the physician would take the trouble and do a little more studying, get acquainted with the U. S. Pharmacopeia and Dispensatory he would not waste his time on such representative but prescribe what his brain will indicate and not Mr. Jones' agent. If such would be his case the public would be greatly benefited and the medical as well as pharmaceutic profession would rank a great deal higher. Your correspondent says, we merely act as agent for the wholesale druggists, but forgets the physician is merely a tool of the manufacturing chemist. We are compelled to load down our shelves with a dozen and more makes of pills, elixirs, tablets, fluid extracts, etc., merely to please the physician and his good ally, the manufacturing chemist. A certain doctor told me a few years ago if I used Squibb's fluid extract of ergot instead of the one he specified he would consider me a substitute, while every apprentice knows this is a standard preparation and can not be excelled. Against such stupidity even a pharmacist is powerless. You say a girl in a factory who does not know the difference between epsom salts and senna leaves is better fitted to make a pill or an elixir than a pharmacist, who has studied for years, who has spent time and money to be efficient in his profession. Is it necessary to answer such a silly question? A first-class pharmacist will not prescribe but will remain within his domain and merely fill prescriptions, but the physician retaliates by taking the bread and butter out of the druggist's mouth by dishing out samples to his patients which have been left at his office by the manufacturing chemist and which the poor patient must swallow merely to give the manufacturing chemist a chance to get rid of his well advertised compounds. Why not carry printed prescriptions to accommodate the manufacturing chemist, or still better, let the mule follow the doctor loaded down with the different packages of the manufacturing chemist; have them labeled by numbers to fit the sickness. Your correspondent ought to know by this time that toilet articles, perfumes, face powders, etc., are taken out of the hands of the retail druggist. The dry goods store, the department store, etc., have complete control of those lines and I hope they will keep it. A first-class pharmacist will not buy any tinctures, elixirs or ointments; he will take pride in making such preparations himself, except his friend, the doctor, compels him to purchase such goods by specifying a certain make. Compare the average druggist's tincture or infusion with the one you recommend and you will find the one is made from carefuully selected herbs or roots, while the large manufacturer's make is rarely up to standard. The principal reason why the doctor should not dispense is a plain one. The pharmacist is a safeguard to the physician. No matter what mistake the doctor makes the efficient, educated pharmacist will correct it and many a life has been saved on that account.

The lot of the pharmacist is surely not a happy one. He is the servant of the people. He merely lives for them. He strains every nerve to accommodate the doctor as well as the general public, and what does he get for it? The physician allies himself with the manufacturing chemist to enrich him and to help himself, and the dear public wonders why men make such fools out of themselves.

But in spite of the manufacturing pharmacist, or better called manufacturing patent medicine maker, the apothecary shop-keeper will continue to exist and better days are in sight for him. Yours very respectfully, E. v. HERMANN.

"Poor Carrasquilla."

NEW YORK, January 31, 1897.

To the Editor:—"A discussion of serum treatment followed, in which poor Carrasquilla suffered. Excepting by his own countrymen, no results were reported from the use of his discovery, and the Germans, the English and others came down in full force to deny not only the usefulness but to argue dangers from its employment. . . . Poor Carrasquilla, to have traveled so far and yet found so little at the end of his journey."—*New Orleans Medical and Surgical Journal*, December, 1897, Special Correspondence on "The Berlin Leprosy Conference."

When the lion was sick, every beast whom he had wronged in his life came to have a blow at him; and when the ass had for some time contemplated this spectacle, with growing courage he actually went and tried a kick of his own. Such a thing happens frequently among men; but, whoever plays the donkey in such a case let him make quite *sure that the lion is past revival.*

Poor Carrasquilla! His serum treatment has been cold-shouldered in Berlin; he who had gone, his heart so full of hope, returns crestfallen; Dr. Dyer weeps over him, for when he read his paper on antivenomous treatment of leprosy, it was received with bated breath and was generally considered *startlingly bold*, and Dr. Dyer, thus encouraged (for he is, I suppose, responsible for the utterances of his co-editor) thought that his ideas would *revolutionize* the treatment of leprosy all over the world. This is interesting. Does not Dr. Dyer think that if anybody should have proposed to cure leprosy by roasting one side of a leper's body, such a proposition would also be listened to with bated breath? Such a treatment would probably be considered also as *startlingly bold*. Yet, would this checked breathing of a startled conference entitle Dr. Dyer to hope that the treatment of leprosy would be revolutionized by the views he exposed with such tremendous effect. How does he reconcile this hope, proclamed with such a strange flourish of trumpets, with the conclusions arrived at by his adored conference ("long live the Berlin conference!")? *Has Dr. Dyer any logical fiber at all?*

It seems to me that if Dr. Carrasquilla is to be called poor, he who has at least some intelligible theory to stand upon, Dr. Dyer would deserve the name of a poor beggar, for his pretensions are based upon nothing at all.

ALBERT S. ASHMEAD, M.D.

Rubaiyat—a Persian Quatrain.

CHICAGO, Jan. 15, 1898.

To the Editor:—In your review of the book, the "Rubáiyát of Doc. Sifers," you fail to tell us what Rubáiyát means. Will you kindly supply the defect? Yours very truly, S.

ANSWER—We quote the following from a work in the Public Library on Persian literature: "His poetry is wholly composed of independent stanzas, called Rubáiyát, consisting each of four lines of equal, though varied, prosody; sometimes all rhyming, but oftener the third line a blank. As usual with such Oriental verse, the Rubáiyát follow one another according to alphabetic rhyme—a strange succession of grave and gay. . . At all events each Rubá'iy is a separate poem and, however composed, finds its place in the manuscripts in accordance with its alphabetic arrangements and not its content. The late M. J. Darmesteter describes the Rubá'iy as a poem complete in itself, with its own unity of form and idea, and when wielded by a genuine poet unequaled in force by any other kind of Persian verse, the repetition of the rhymes enveloping and accentuating the silence of the third line, which is generally left blank, producing harmonies and contrasting sounds calculated to give a peculiar relief to the harmonies and contrasts of the idea."

Do Adult Squirrels Castrate Each Other?

CHICAGO, Jan. 25, 1897.

To the Editor:—I have read with much interest Dr. Edmund Andrews' article on "The Oriental Eunuchs," in the JOURNAL, Jan. 22, 1898, wherein speaking of the castration of animals and says anent squirrels: "Naturalists state that the black or gray male squirrels in fighting seek to castrate each other with their teeth, so that many of those taken by hunters are thus mutilated. As they do it only in adult life it does not materially change their general development." Commenting upon this, later, in a letter to the JOURNAL dated Jan. 25, 1898, he quotes the observations of Dr. A. S. Allen.

Being somewhat of squirrel-hunter myself I wish to confirm the report of Dr. Allen. I should say that fully one-half the male squirrels I have noticed were castrated. This is always done in early life, not merely in the nest as described by Dr. Allen, but also after they begin to run. It is always done by the male parent. The young are chased from limb to limb and tree to tree until exhausted, when the old ones deliberately remove the testes and scrotum clean from the body. The practice is not confined to the gray squirrel. I have noticed it more frequently among the large fox squirrels found in Illinois.

I believe such an operation to be impossible among adult animals engaged in battle. The operation is, in most cases, done so neatly with their sharp teeth that no vestige of tissue remains. At first I took it for granted that they were all females, although I could not account for their large size. The large size of these animals, the perfectly healed wounds and the seeming impossibility of performing such a neat operation in a fit of anger, as suggested by naturalists, would forbid the conclusion that such operations are ever performed in adult life. The castrated are much fatter than the perfect males.

The only cause which I could assign for this methodical operation is that of jealousy, which is shared by the farmer who lives in the vicinity.

The practice may be taken in its mental origin to the sexual mental state underlying the driving forth of young males by the old ones among social animals.

EUGENE S. TALBOT, M.D.

PUBLIC HEALTH.

The "Caffery Bill" as reported to the Senate January 19, by Senator Vest.—That "An Act granting additional quarantine powers and imposing additional duties upon the Marine-Hospital Service," approved February fifteenth, eighteen hundred and ninety-three, be amended by striking out the following words in section one: "And with such rules and regulations of State and municipal health authorities as may be made in pursuance of or consistent with this Act," and striking out section three and inserting the following in the place of said section:

"SEC. 3. That immediately after the passage of this Act the Secretary of the Treasury shall make such rules and regulations as are necessary to prevent the introduction into the United States of any infectious or contagious disease from any foreign port or place, or the spread of such diseases from one State or Territory, or the District of Columbia, into another State or Territory, or the District of Columbia, and such necessary rules and regulations as shall be observed by vessels or vehicles departing from foreign ports or places for ports or places in the United States to secure the best sanitary condition of such vessels or vehicles, their cargoes, passengers, and crews, which rules and regulations shall be published and communicated to and enforced by consular, quarantine, and customs officers of the United States and the State and local quarantine officers of the United States. All rules and regulations made by the Secretary of the Treasury shall operate uniformly, so far as climatic conditions will justify in the interest of the security against the introduction or spread of said infectious and contagious diseases, and shall not discriminate against any port or place. None of the penalties herein imposed shall attach to any vessel from a foreign port, or owner, or officer thereof, until a copy of this Act, with the rules and regulations made in pursuance thereof, has been posted up in the office of the consul or other consular officer of the United States for ten days in the port from which said vessel sailed, and the certificate of such consul or consular officer, over his official signature, shall be competent evidence of such posting in any court in the United States.

"At any port or place in the United States where the Secretary of the Treasury shall deem it necessary for the prevention of the introduction of contagious or infectious disease from a foreign port or place that incoming vessels, vehicles, or persons shall be inspected by a national quarantine officer, such officer shall be designated or appointed by the Secretary of the Treasury on recommendation of the Surgeon-General of the Marine-Hospital Service, and at any such port or place no vessel, vehicle, or person from any foreign port or place shall be admitted to entry or enter without the certificate of said officer that the United States quarantine regulations have been complied with.

"Any vessel sailing from any foreign port without a United States consular bill of health, and arriving within the limits of any collection district of the United States, and not entering or attempting to enter any port of the United States, shall be subject to such quarantine measures as shall be prescribed by regulations of the Secretary of the Treasury, and the cost of such measures shall be a lien on said vessel, to be recovered by proceedings in the proper district court of the United States and in the manner set forth above as regards vessels from foreign ports without bills of health and entering any port of the United States.

"National quarantine stations now in operation shall be conducted in accordance with the provisions of this Act, and the Supervising Surgeon General, with the approval of the Secretary of the Treasury, is authorized to designate and mark the boundaries of the quarantine grounds and quarantine anchorages for vessels which are reserved for use at each United States quarantine station; and any vessel, or officer of any vessel, or other person trespassing upon such grounds or anchorages, in disregard of the quarantine rules and regulations, shall be deemed guilty of a misdemeanor and subject to arrest, and, upon conviction thereof, be punished by a fine of not more than three hundred dollars, or imprisonment for not more than one year, or both, in the discretion of the court.

"And any master or owner of any vessel or any person violating any provision of this Act or any rule or regulation made in accordance with this Act, relating to inspection of vessels, or relating to the prevention of the introduction of contagious or infectious diseases, and any master, owner, or agent of any vessel making a false statement relative to the sanitary condition of said vessel or its contents, or as to the health of any passenger or person thereon, shall be deemed guilty of a misdemeanor and subject to arrest, and, upon conviction thereof, be punished by a fine of not more than five hundred dollars, or imprisonment for not more than one year, or both, in the discretion of the court.

"Medical officers of the United States, duly clothed with authority to act as quarantine officers at any port or place within the United States, and when performing such duties, are hereby authorized to take declarations and administer oaths in matters pertaining to the administration of the quarantine laws and regulations of the United States.

"The Secretary of the Treasury shall, whenever in his judgment it is necessary, make rules and regulations to prevent the introduction of infectious or contagious diseases into one State or Territory or the District of Columbia from another State, Territory, or the District of Columbia, and when such rules and regulations have been duly made they shall be promulgated by the Secretary of the Treasury and enforced by the sanitary authorities of the States and municipalities when the State or municipal authorities will undertake to execute or enforce them; but if the State or municipal authorities shall fail or refuse to enforce said rules and regulations, or other rules or regulations made under the provisions of this Act, the President shall execute and enforce the same, and adopt such measures as in his judgment shall be necessary to prevent the introduction or spread of such diseases, and may detail or appoint officers for that purpose.

"Whenever yellow fever, cholera, plague, or typhus fever has passed the quarantines of the United States, or in any manner any one of these diseases has gained entrance or has appeared within the limits of any State, Territory, or the District of Columbia, the quarantine regulations of the United States, prepared under the direction of the Secretary of the Treasury, for the purpose of preventing the spread of such diseases from one State, Territory, or the District of Columbia into another State, Territory, or the District of Columbia, shall be supreme and have precedence of State or municipal laws, rules, or regulations, and the President is authorized to enforce the same and to control the movement of vessels, railway trains, vehicles, or persons so as to prevent these diseases from spreading from one State, Territory, or the District of Columbia, to another State, Territory or the District of Columbia, and to prevent unnecessary restrictions upon interstate commerce; and whenever, in accordance with the rules and regulations made as herein authorized to prohibit or permit the movement of vessels, railway trains, and vehicles, or transportation of persons, prohibitions or permits have been made or granted, any person violating said prohibition or permit shall be deemed guilty of a misdemeanor, and shall be subject to a fine of not more than one thousand dollars or imprisonment for not more than twelve months, or both, at the discretion of the court; and any violation of said prohibition or permit shall be reported to the United States district attorney for the district in which the offense has been committed, who shall thereupon institute necessary proceeding for the recovery of the penalty herein imposed."

That section six of said Act shall be amended to read as follows:

"That on the arrival of an infected vessel at any port not provided with the proper facilities for treatment of the same, the Secretary may remand said vessel, at its own expense, to the nearest national or other quarantine station where accommodations and appliances are provided for the necessary disinfection and treatment of the vessel, passengers, and cargo; and after treatment of any infected vessel, or inspection of any vessel not infected, at a national quarantine station, and after certificate shall have been given by the United States quarantine officer at said station that the vessel, cargo, and passengers are each and all free from infectious disease or danger of conveying the same, said vessel shall be permitted to enter and admitted to entry at any port of the United States named within the certificate. But at any ports where sufficient quarantine provision has been made by State or local authorities, the Secretary of the Treasury shall direct vessels bound for said ports to undergo quarantine at said State or local station."

That section eight of said Act shall be amended to read as follows:

"That whenever the proper authorities of a State shall surrender to the United States the use of the buildings, grounds, and disinfecting apparatus at a State or municipal quarantine station, the Secretary of the Treasury shall be authorized to purchase them at a reasonable compensation, or pay a reasonable rental for their use, if in his opinion they are necessary to the United States; and the expense of said purchase or rental is made payable from the epidemic fund.

"That the Surgeon-General of the Marine-Hospital Service shall, whenever he may deem it necessary, appoint in each port exposed to yellow fever, or where such disease has ever been introduced, a port sanitary inspector, who shall have been a practicing physician for at least five years before his appointment at said port, and who shall be familiar with the symptoms of the disease hereinbefore mentioned, and skilled in its prevention and treatment.

"It shall be the duty of the port sanitary inspectors or quarantine physicians so appointed to make careful examination of the sanitary condition and surroundings of the ports where they reside and for which they are appointed, and to report each month, or oftener, if required so to do, the facts as to the sanitary condition of such ports to the Surgeon-General of the Marine-Hospital Service, with such suggestions and recommendations as they may think necessary and proper. The said port sanitary inspectors shall perform such other duties in treating yellow fever or other infectious diseases as the Surgeon-General of the Marine-Hospital Service shall direct; and they shall each be paid from the Treasury, upon vouchers signed by the Surgeon-General of the Marine Hospital Service, the sum of one thousand dollars annually, payable, in equal quarterly installments, on the first days of January, April, July, and November.

Osteopathy.—Decision rendered in the Appellate Court of Illinois, Third District, November term, 1896.

Eugene H. Eastman v. the People, etc., Wall, J., Appeal from Jersey County Court.

This is an appeal from a judgment for $100 as a penalty for practicing medicine without license, under Par. 10, Ch. 91, R. S. It appears that the appellant was engaged in the practice of "the profession of osteopathy," as it is termed in the briefs; that he had an office where he received patients, and that he visited patients at their homes; that he advertised his system and his skill therein by publications in the newspapers and that he professed ability to understand and treat human ailments intelligently and successfully.

So far as shown his treatment consisted wholly of rubbing and manipulating the affected parts with his hands and fingers and by flexing and moving the limbs of the patient in various ways.

It is insisted on his behalf that because he used no medicines or instruments he is not amenable to the statute.

Par. 14 of Ch. 91 declares that "Any person shall be regarded as practicing medicine within the meaning of this Act who shall treat, operate on or prescribe for any physical ailment of another."

It is argued on behalf of appellant that this provision must receive reasonable interpretation, and that to "treat" implies the use of medicines or drugs of some sort, and to "operate on" implies the use of instruments of some sort. This is not so necessarily. Many of the minor operations are effected without the use of instruments by mere pressure, extension and flexing.

This of course implies some knowledge of anatomy and some skill. So, many forms of disease are treated by attention to the diet, habits and mode of life without resorting to medical remedies.

It is said by counsel that if the statute reaches this case it must include treatment by Turkish baths, massage and the like. We think not. The evidence shows that appellant held himself out as competent to treat and cure numerous diseases, such as all forms of fevers, cerebrospinal meningitis, catarrh, diphtheria, croup, pneumonia, asthma, indigestion, dysentery, kidney diseases, measles, paralysis and many others, including in fact a large proportion of the ailments common to mankind. He represented himself as a graduate of the new school of "Osteopathy" and held himself out as qualified to examine and treat all who might seek his aid. Herein he differs from those who give Turkish baths, massage and the like.

He professes to be able to diagnose and advise in respect to a long list of diseases and to furnish discriminating and efficient treatment to those who may come to him, and while he may rely wholly upon manipulation, flexing, rubbing, extension, etc., yet he professes to have skill and judgment in these methods, so as properly to adapt the treatment to each case, giving it what is appropriate in amount and with repetition at such times and to such extent as may be dictated by his knowledge and experience. By his skill in the use of his peculiar remedies or methods he claims to be competent to relieve and cure various ailments, and therefore he invites patronage. We are referred to the case, Smith v. Lane, 24 Hun. 632. The statute of New York is unlike ours, and the facts of that case are unlike these in the case at bar. We think the ruling there should not control here.

It is suggested rather than argued that as the title of the act in question is "An Act to regulate the practice of medicine in the State of Illinois," and as the constitution provides that no act shall embrace more than one subject which must be expressed in the title, any construction which would include a matter not within the practice of *medicine* must be avoided or the Act is unconstitutional.

"Medicine is the art of understanding diseases and curing or relieving them when possible."—Bigelow. "It is that branch of physics which relates to the healing of diseases."—Dunglison.

This act is not restricted to any particular methods or remedies. Indeed these are almost innumerable, considering what are used and what have been discarded.

We are of opinion the proofs bring appellant within the act and that he is liable to the penalty imposed thereby for practicing medicine without license.

It is urged the court erred in refusing to dismiss the suit for want of authority of plaintiff's attorney to institute the action.

It is shown by a recital of the clerk in the order of record that such a motion was made and overruled and that the defendant excepted.

This entry by the clerk in the orders of the court for the day is not sufficient to save the exception, and if it were there is nothing to show that the motion was supported by anything requiring the action of the court. Such a motion should be supported by affidavit or some matter of which the court should take notice, and must be preserved by a bill of exceptions. The judgment will be affirmed. *Affirmed.*

Filed June 16, 1897. W. C. Hippard, Clerk, Appellate Court, Third District.

Defendant paid fine and left the State.

The State Board of Health have won the fight.

Validity of Health Ordinance Prohibiting Sale of Fresh Pork.—The city council of Helena, Ark., passed the following ordinance: "Whereas, the municipal board of health of Helena, Ark., at a regular meeting, held on the 30th day of April, 1880, declared the sale of fresh pork detrimental to the health of the citizens of Helena; therefore, be it ordained by the mayor and council of the city of Helena: Section 1. That it shall not be lawful for any person or persons to sell, or offer to sell, within the city any fresh pork, or sausage made thereof, between the first day of June and October in each year," etc. Was this ordinance valid? The statutes of that State confer upon cities of the first class power "to prevent or regulate the carrying on of any trade, business or vocation of a tendency dangerous to morals, health or safety, or calculated to promote dishonesty or crime." Under this statute the city council of Helena undertook to prevent the sale of fresh pork "between the first day of June and October in each year." It obviously intended to prevent the eating of it in Helena during this time by prohibiting the sale of it. Again, the question: Was the ordinance passed for that purpose a reasonable or lawful exercise of the powers granted by the statute? The supreme court of Arkansas says, in its answer, Nov. 13, 1897, case of City of Helena vs. Dwyer, that fresh pork is an article of food of general consumption and, when sound and free from disease, is useful and nutritious. Like all other food, it may become unwholesome when eaten to excess. The quantity eaten, under ordinary circumstances, produces the sickness, when it proves unwholesome. Any food is calculated to produce that effect when eaten in the same manner. The mere sale of it is not detrimental to the public health. The fact that individuals may be made sick by it when imprudently eaten does not justify a city council in prohibiting the sale of it. For the same reason it could prohibit the sale of any or all other food. The most delicious food, that which is most liable to be eaten to excess, would be subject to interdiction. If it be conceded that the city council may prohibit the sale of any article of food, the wrongful use of which will or may injure the health of the consumer, then they can prescribe what the citizens of the city shall eat by prohibiting the sale of all other food. The legislature or any of its creatures has no such power. The exercise of such power would be a violation of the inalienable right of man to procure healthy and nutritious food, by which life may be preserved and enjoyed. It would be an interference with the liberty of the citizen which is not necessary for the protection of others or the public health; would be an invasion of his personal rights. For the reasons indicated, the supreme court holds that the ordinance in question was unreasonable, invalid and void.

BOOK NOTICES.

Elements of Latin. For Students of Medicine and Pharmacy. By GEORGE D. CROTHERS, A.M., M.D., Teacher of Latin and Greek in the St. Joseph (Mo.) High School; formerly Professor of Latin and Greek in the University of Omaha; and HIRAM H. BICE, A.M., Instructor in Latin and Greek in the Boys' High School of New York City. 5¼x7½ inches. Pp. xii-242. Flexible cloth, $1.25 net. The F. A. Davis Company, Publishers, 1914-16 Cherry Street, Philadelphia; 117 W. Forty-second Street, New York City; 9 Lakeside Building, 218-220 S. Clark Street, Chicago, Ill.

This is an elementary Latin book for the use of students in pharmacy and medicine and is well adapted for such use. It is well arranged and the exercises chosen are such as to familiarize the student with the work with which he is to engage. The only criticism we make is that the authors have seen fit to adopt the English system of pronunciation, which we think a mistake, inasmuch as no country except England has agreed to give the English vowel sounds to Latin words, and the student who undertakes to use the English pronunciation of medical terms in foreign countries, except England, will find himself not understood and his knowledge unavailable.

We regret extremely that a book in all other respects so worthy of commendation should have this defect. It is imperatively necessary that medical students, so long as they go abroad, should not be additionally burdened or handicapped by having learned the Latin terms (also used in foreign countries) with an insular pronunciation that can only be understood by the islanders themselves or their descendants.

Twelfth Annual Report of the State Board of Health and Vital Statistics of the Commonwealth of Pennsylvania. Two volumes, cloth, pp. 1194. 1897.

Volume I contains reports and minutes; reports of standing committees; annual reports of county inspectors and of cities and boroughs, and reports on quarantine, disinfection, epidemics and special sources of disease. Volume II has to do with conferences and conventions and includes many papers of interest read at these various meetings. This volume also contains circulars and forms concerning regulation of matters in the province of the State Board of Health, etc.

The Psychology of Suggestion. A research into the subconscious nature of men and society, by Boris Sidis, M.A., Ph.D., with an introduction by Professor William James of Harvard University. New York: D. Appleton & Co. 1898.

Much of the experimental part of the work although planned by Dr. Sidis was done in the Harvard Psychologic Laboratory.

The volume is divided into three parts. Part 1, Suggestibility. Part 2, The self. Part 3, Society.

Those interested in elements and stages of self-consciousness, intercommunication between the two selves, will find very much of interest in this volume. Here we have the mental processes brought down by easy transitions into formation of geometric figures and algebraic equations.

"It is as easy as playing on this pipe." The work is however instructive to all interested in this latter day fad, whether they agree with the conclusions of Dr. Sidis or not.

Notes on Micro-organisms Pathogenic to Men. By the Surgeon Captain B. H. S. Leumann, I. M. S., London and Cambridge: Longmans, Green & Co., pp. 65. 1897.

This is one of the most instructive and interesting little works that has fallen under our observation. It contains more in fewer pages than any work on the subject in English. Each paragraph in his work has a marginal note index which for reference will be found very convenient.

It is based on lectures delivered at the Army Medical School at Netley during the winter session of 1893 and 1894.

Among recent small works on bacteriology this little one must take a prominent place.

The World's Almanac and Encyclopedia, 1898. Pp. 568, issued monthly by the Press Publishing Company. Pulitzer Building. New York.

This well known Almanac seems to have collected all the facts of the year and condensed them in a way to make them handy and useful. No almanac contains more information than this.

SOCIETY NEWS.

International Health Exposition.—An International Health Exposition is to be held in New York City, April 25 to May 31, 1898.

American Laryngological, Rhinological and Otological Society.—The Southern Section of the American Laryngological, Rhinological and Otological Society will meet in Atlanta, Ga., Monday March 28, at 10 A.M. in the parlors of the Aragon Hotel. An invitation is extended to the profession, and especially to members of the Society. Dr. A. W. Calhoun is Chairman and Dr. Dunbar Roy of Atlanta, is secretary.

Cumberland County (N. J.) Medical Society.—The January meeting of the Cumberland County Medical Society was held at "Hotel Stephens," Vineland, January 11, with Vice-President, Dr. Judson in the chair. Dr. Ware read an interesting paper on the "Old Time Doctor." A valuable paper on "Puerperal Eclampsia," was also read by Dr. L. F. Day.

The Denver and Arapahoe Medical Society.—At the annual meeting of the Denver and Arapahoe Medical Society held January 11, the following officers were elected for the ensuing year: President, E. P. Hershey; vice-president, H. B. Whitney; secretary, G. E. Tyler; financial secretary, J. M. Blaine; treasurer, E. J. Rothwell. There is great enthusiasm in the Society over the coming of the American Medical Association in June, and preparations are being made for the handsome entertainment of all delegates. Colorado will give them most hearty welcome.

NECROLOGY.

Theophilus Parvin, A.M., M.D., LL.D., ex-President of the American Medical Association, Professor of Obstetrics and Diseases of Women and Children, Jefferson Medical College, died January 29 after a short illness at his home in Philadelphia. About eight years ago, Dr. Parvin, when examining a patient, inoculated his index finger with specific poison and, recognizing the nature of the infection, he called the attention of the class to it on several occasions as a warning to them to be always on their guard. His health subsequently became impaired and he suffered with a severe form of chronic laryngitis which compelled him for a time to suspend his lectures; of recent years however, this affection had been overcome so that he not only resumed his course of lectures, but was able to accept complimentary invitations to address medical societies. He was also a prominent member of the Young Men's Christian Association, being especially interested in the evangelistic work among the colleges; he occasionally presided or delivered addresses on Sunday night religious meetings for students. About a month ago Dr. Parvin experienced attacks of difficulty of breathing and irregular heart action, and showed marked evidence of failing health, but it was not until the day before his death occurred that his attending physicians anticipated any serious result to his sickness. He leaves a widow and two sons.

Dr. Parvin was born in Buenos Ayres, Argentine Republic, Jan. 9, 1829, his father being at that time a missionary there. On the death of his father, when Dr. Parvin was only seven years of age, the son was sent to Philadelphia and prepared for college. He attended the freshman year in class of 1846, at Lafayette College, Easton, Pa., and then went to University of Indiana, where he was graduated in 1847. He then returned to Philadelphia and attended lectures at the Medical Department of the University of Pennsylvania, when he received his diploma in 1852. After spending two years as ship surgeon on a packet sailing between Philadelphia and Liverpool, Dr. Parvin went to Indianapolis, where he found a favorable location to practice his profession. In 1855 he accepted the chair of Materia Medica and Therapeutics in the Ohio Medical College at Cincinnati. Selecting the chosen field of labor in which he afterward became so distinguished as an author and teacher, he devoted especial attention to obstetrics and gynecology and entered the Faculty of the University of Louisville as Professor of Obstetrics, a position which he soon resigned in order to accept the same chair in the Indianapolis Medical College, which he helped to organize and establish. In 1872, Hanover College granted Prof. Parvin the honorary title of Doctor of Laws. In 1883, Dr. Parvin was called to the chair of Obstetrics and Diseases of Women and Children in the Jefferson Medical College, a position which he most acceptably and successfully filled until his death.

The Obstetrical Society of Berlin made Dr. Parvin an honorary member and this distinguished compliment was also paid him by the Obstetrical and Gynecological Society of Edinburgh. He was a member of the International Medical Congress and attended the sessions at Washington, Berlin and Moscow. He was a Fellow of the College of Physicians and the Philosophical Society of Philadelphia, of the American Academy of Medicine and of the American Gynecological Society. He was elected one of the honorary presidents of the Obstetric Section of the Berlin International Medical Congress and of the International Congress of Gynecology and Obstetrics which met at Brussels. He was also a prominent member of a number of other medical societies both in this country and in Europe.

Dr. Parvin was a facile writer and lecturer, he had a pleasing frank expression of face and a clearness in expressing his thoughts which made him an attractive public speaker. Those members of the ASSOCIATION who were present at the meeting at Atlanta in 1879, when Dr. Parvin delivered his Address as President, will never forget the marked evidences of favor which were accorded him, and the enthusiasm that his words inspired in an audience not accustomed to demonstrations of the kind. Professor Parvin was a valued, though lately not a frequent contributor to medical journalism. He was a member of the Medical Editors Association and had served as its President. In 1886 he finished his work on the "Science and Art of Obstetrics," which has gone through a number of editions and is now used as a text book. He also translated Winckel's "Obstetrics" several years ago. He was one of the associate editors of "Sajous' Annual of the Universal Medical Sciences" and contributed important articles to several systematic treatises and encyclopedias of medicines and allied sciences.

The students of Jefferson College and the members of the Theophilus Parvin Medical Society passed resolutions of sympathy and condolence, and the Faculty of Jefferson College entered a minute recording their sense of loss to the community, to the College and to the world of science and letters by his death.

J. Q. A. STEWART, M.D., died January 25 at his home, Farmdale, near Frankfort, Ky., of Bright's disease. Dr. Stewart was born Feb. 13, 1829, near Louisville. At the age of 20 years he had secured a good common school education and had graduated in law. Before he had begun the practice of his profession the "gold fever" had broken out in California and he decided on the journey across the plains. Soon after their arrival in the mining camp he was chosen magistrate, and many were the interesting stories he has been able to tell his friends of his career as "Judge." After some years in California he returned to Kentucky. In 1859 he was graduated from the Kentucky School of Medicine and at once went to Daviess County to practice. As a practitioner he was successful from the start, and after a few years practice in the country he removed to Owensboro, where he lived, meeting with all the recognition, social and professional, offered by Owensboro, until his removal to Frankfort, in March, 1878, to accept the position of medical superintendent of the Kentucky Institution for the Training of Feeble minded Children, tendered him by Gov. John B. McCreary. It is rare in this day of practical politics that a governor in rewarding party friends, makes so fortunate a selection as was made in this instance by Governor McCreary. That his appointee measured up to the place in every way is evidenced by the prompt reappointment by Governors Blackburn, Knott and Buckner. He honored the position, and the sixteen years he passed in this institution were marked by a fidelity to duty, interest in his work, and an ability to carry it on never excelled in the history of our eleemosynary institutions. To show the esteem in which he was held by the parents of the children intrusted to his care, every one who could afford it removed their afflicted ones to Dr. Stewart's private infirmary, when his term as superintendent of the State Institution was ended. Whilst he would undoubtedly have met with a large measure of success in private practice, it is questionable if he could ever in a large city have done the amount of good that he now has to his account. In the spring of 1893, his only son having graduated in medicine, Dr. Stewart bought the old Kentucky Military Institute, six miles from Frankfort, and established him in business as manager of the "Stewart Home." In the following year, upon the expiration of his term at the State Institution, Dr. Stewart resigned to be associated with his son in the management of their private infirmary. As an alienist Dr. Stewart is well known all over the continent and Europe. He has visited every public and private institution in the country, and did not, for many years, miss a single meeting of the superintendents. He was an ex president of their association and contributed valuable papers at their different meetings. In the industrial reforms of feeble-minded institutions, he was the pioneer in inaugurating the teaching of useful trades to the brighter patients; gardening, carpentering, shoemaking, broom and mattress making to the boys, and sewing, washing, cooking and housework to the girls. The highest honor the profession of a State can show a fellow is an election to the presidency of the State Medical Society, and this was generously accorded Dr. Stewart at the Frankfort meeting in 1893.

BENJAMIN CHAMBERS LUDLOW, M.D., University of Pennsylvania, 1854, died at his home in Los Angeles, Cal., January 10. He was born in 1831 at Ludlow Station, Ohio, and when 30 years of age raised a company of cavalry whose services were offered to Lieut. General Scott at the opening of the civil war. The latter replied: "No cavalry will be required. The four regular regiments will be sufficient." Soon after he was made captain of Fremont's Hussars at St. Louis, Mo.; then an aide of Major General "Joe" Hooker at the battle of Chancellorsville, and served under Major General Meade as an inspector of artillery at Gettysburg, Williamstown, Wine Run, Rappahannock and in several minor battles. In October, 1864, Col. Ludlow was appointed Brigadier General, by brevet, for gallant conduct at Dutch Gap and at Spring Hill, Va., and was placed in command of the James and York river defences. He resigned from the army in 1865.

DEATHS IN THE PROFESSION ABROAD.—Jules Emile Péan, Paris, January 30. He was born at Chateau Dun (Eure-Et-Loire), Nov. 29, 1830, and practiced surgery continuously in Paris for more than forty-five years. He was easily at the head of modern French surgery, and in the whole surgical world it is doubtful if he had a superior as an all round surgeon. In 1865 he was appointed surgeon of the central bureau. Two years later he joined the staff of the Lourcine, where he remained five years, going then to Saint-Antoine, and finally to Saint-Louis, where he remained until 1892. He became famous for his success in the delicate operations of ovariotomy. In 1887 he was elected a member of the Academy of Medicine. Three years later he received the decoration of the Legion of Honor, and in 1893 he was made a commander. His many admirers in America will greatly regret to learn of his death, and will join the medical profession of his native country in mourning his loss, for Péan belonged not only to France, but to the world.——Dr. Stanislaus Danillo, lecturer on Mental Diseases in the St. Petersburg Medico-Military Academy, aged 49 years.——Dr. Carl Ritter von Rzehaczek, Emeritus Professor of Surgery in the University of Graz.——Dr. Tiburcio Padilla, founder and till his death editor of the *Samana Medica*, of Buenos Ayres; professor in the Colegio Nacional; physician to the Hospital de las Mercedes of that city; author of "*Guia Medical*" and a work on medical jurisprudence; co-editor of the "*Farmacopea Argentina*," etc.——Dr. T. H Belval of Brussels, editor of the *Mouvement Hygiénique*, and founder of the Belgium Anti-alcohol League, aged 65 years.

W. ABRAM LOVE, M.D., Atlanta, Ga., died January 21, aged 74 years. Dr. Love was born in Camden, S. C., was graduated from the medical department of the University of Pennsylvania in 1846, and was elected superintendent of the Georgia Asylum for the Deaf and Dumb in 1850. In 1871 he was elected to the chair of physiology in Atlanta Medical College, and later president of the faculty, which office he held on his death. He was also a member of the State Medical Association and the AMERICAN MEDICAL ASSOCIATION.

Charles L. Wells, M.D., Professor of Diseases of Children, University of Minnesota, Minneapolis, died January 20, from pneumonia. Dr. Wells was born in Pompeii, N. Y., 56 years ago; was graduated from Geneva Medical College in 1869, and ex-president of the Minnesota Academy of Medicine.

Smith Buttermore, M.D., Connellsville, Pa., Dec. 28, 1897. aged 68 years.——Joseph R. Chaffers, M. D., Worcester, Mass., January 19, aged 40 years——John C. Corley, M.D., Bloomington, Ill., January 27.——Charles Gangloff, M.D., Pittsburg, Pa., January 22, aged 51 years.——W. L. Hallam, M.D., Bloomington, Ill., January 24, aged 45 years.—— Frank A. Mitchell, M.D., Bridgton, Maine, January 23.——R. C. Rice, M.D., Smithland, Iowa, January 25, aged 60 years.——Chas. Slaughter, M.D., Duluth, Minn., January 23.——Shep. A. Rogers, MD., Memphis, Tenn.

MISCELLANY.

Coxitis Tuberculosa.—F. König considers a radiograph an indispensable preliminary to operation, although simple granulating foci cast no specific shadow. But degenerated bones, especially caseous infiltrations, are shown well in the photograph, except in the case of very young children.—*Klin. Therap. Woch.*, January 1.

Tuberculosis of the Tubes.—Jacobs recently operated on a young woman to remove an enormous abscess of the left tube, which proved to be tuberculous, and later the right tube had to be removed for the same cause. There are no other manifestations of tuberculosis, and the patient seems now in the best of health.—*Presse Méd.*, January 1.

Tuberculin R.—The latest reports published continue to be unfavorable to Koch's new tuberculin; the disease seems to continue its course unaffected by the injections (Stempel, 23 cases; Spiegel, 21 cases, *Münch. Med. Woch.*, Nos. 48 and 50, 1897). The greatest benefit has been derived from it in lupus, and here and there are a few who endorse it enthusiastically. In closing the series of articles the *Deutsche Med. Woch.* has been publishing on the subject, it remarks that several years must pass before the value of the Koch treatment is finally established.

Differentiation of Tuberculosis of the Salivary Glands.—Frequently produced experimentally, this localization of tuberculosis in man is extremely rare. O'Zoux describes two cases, distinguished from simple adenitis by the large size of the tumor and its location close beneath the edge of the lower maxillary bone. It is very painful and less solid around the edges than an adenitis. The pus is thin and not very abundant. The sound everywhere meets the same resistant, squeaking tissue. —*Archives Clin. de Bordeaux*, 1897, No. 1.

Pancreatic Diabetes of Tubercular Origin.—Carnot states that specific tubercular lesions are very rarely found in the pancreas, which reacts to tuberculous infection with sclerosis, caused evidently by the products of the bacillus, as the bacillus itself disappears very rapidly. Experimentation with dogs produced a similar sclerosis reaction, with or without glycosuria, according to the progress of the sclerosis in most cases. When there was no trace of glycosuria, the necropsy usually showed part of the organ still intact or regenerated. When the sclerosis in man becomes total diabetes follows.—*Gaz. d. Osp. e d. Clin.*, January 4.

Lupus and Tuberculous Ulcerations of the Ano-rectal Region.—A recent thesis by Dimitroff observes that this affection is not so rare as supposed; one has only to look for it. The infection is sometimes from without; accidental contact with infected clothing, etc.; sometimes from tuberculous sputa, possibly of auto-origin. The development of the bacilli is favored by hemorrhoids, constipation or diarrhea, traumatism, etc. He adds another to the seven observations on record. A comparatively healthy young man, affected for two years with tuberculous erythematous patches and ulcerations, which were excised and the loss of substance substituted by a flap from the surrounding region. The result was excellent, and excision is recommended whenever the lesions are too deep to be removed by scarifying alone.—*Presse Méd.*, January 15.

A New Streptobacillary Tuberculosis.—Courmont and Tixier have succeeded in isolating and cultivating a special streptobacillus from a peculiar form of tuberculosis consisting of a hemorrhagic arthritis of the elbow with typic tuberculous manifestations, nodules, giant cells, etc. It was impossible to find the Koch bacillus, but animals inoculated with the serous fluid from the joint succumbed with extreme rapidity to tuberculosis, resembling in some respects the human lesions. In the tubercles on the liver of one of the guinea pigs that had succumbed, a streptobacillus was discovered which cultivated easily on various media, and was reinoculable, producing the specific infection, distinguished by the rapid invasion of the ganglia, the local suppurations in some cases, and frequent hemorrhagic lesions.—*Gaz. d. Osp. e d. Clin.*, January 6.

The Painful Dysphagia of Tuberculous Laryngitis.—It is important to relieve this condition as it interferes with nutrition, and Courtade has found the insufflation of morphin hydrochlorate, 0.2 to 1 centigram, mixed with sugar of milk, the best analgesic for the purpose. The tip of the tube is placed at the entrance of the larynx, and while the patient makes the sound of a prolonged *ah*, he squeezes the bulb and the powder is evenly distributed. Repeat twice a day. Sprays will sometimes relieve better. He uses a solution of phenic acid, 1 gram; glycerin, 20 grams; water, 300 grams; cocain hydrochlorate, 50 centigrams. The spray is inhaled deeply by the mouth, with expiration through the nose. Local applications are also useful in some cases, of a twentieth solution of resorcin or chlorid of zinc, with or without morphin. He warns against the use of counter-irritants.—*Gaz. d. Osp. e d. Clin.*, January 13.

Tuberculous Pleuritis.—In a recent lecture reported in the *Gaz. d. Osp. e d. Clin.* of January 9, Professor Maragliano remarked that in forming a prognosis of this affection we must banish from our minds the old idea that tuberculous affections were necessarily fatal. Tuberculous pleuritis frequently terminates in spontaneous recovery, especially when the effusion is serofibrinous, but if the effusion does not show a tendency to be absorbed, thoracentesis should be performed, and the ribs resected if necessary. This latter, he adds, is still a problem for the future, as at present surgical intervention is reserved for desperate cases; but, if instead, we strove to prevent the development of an affection by surgical intervention in the initial stages, he believes that this therapeutic conception would demonstrate its utility and be crowned with success in practice, especially in these cases, when the lungs are compressed by the effusion, and fibrous stratification and pseudo-membranous adherences prevent absorbtion.

Transformation of Human Tuberculosis by Passage Through Cold-blooded Animals.—Intraperitoneal inoculation of dead or living human tuberculosis in fishes, snakes, lizards, turtles and frogs, produced violent phagocytosis reaction, ascitic effusion, false membranes, adherences between the viscera and typic tuberculous granulations. The dead bacilli retained their shape and reaction to stains more than four weeks. The living bacilli adapt themselves to their new environment by the twelfth day, becoming club-shaped, ovoid, dichotomous, etc., showing involution. Some spored; others sent out lateral buds. Far from losing their vitality, these bacilli cultivated readily, producing these transitional forms of Velars' bacillus. Injected into guinea pigs, these transformed cultures produced a much-attenuated tuberculosis or a local lesion or no reaction, according to the number of passages and the degree of transformation. Lizards resisted the inoculations of human tuberculosis and also proved refractory to Velars' bacillus, bac. tuberc. piscium.—Dubard of Dijon, *Bull. de l'Acad. de Méd.*, December 7.

The Audiffred Prize for the Cure of Tuberculosis, Acad. de Méd. Paris, was not awarded this year. Over a hundred communications were received, mostly from non-medical persons, who announce that on receipt of the prize, they will impart the particulars of an infallible remedy. One contained a poem celebrating the golden wedding of the writer, who had married a tuberculous girl fifty years before, and cured her with his remedy. The only two strictly scientific communications were from America. One from Hirschfelder of San Francisco, who described his success with oxytuberculin (*vide* JOURNAL, Vol. XXIX, p. 208), and the other from Vergara Lope and Herrera of Mexico, reporting the successful results of their treatment of tuberculosis with artificially rarefied air (*vide* JOURNAL, Vol. XXVII, p. 656). Both are interesting, but the Académie does not consider them sufficiently established by experimentation with animals to entitle them to the prize.

Mercury in Tuberculosis.—Dr. Dubois reported to the Paris Académie de Médecine a year ago (*Bulletin*, Feb. 2, 1896), that he had secured results surpassing all expectation, in tuberculosis, with a thousandth solution of the bichlorid of mercury, 0.5 c.c. injected every other day in the subspinal or subclavicular region, increasing to 1 c.c. At first he thought he must have stumbled on syphilitics, but he soon became convinced that this was not the case. He has been using this treatment for five years, and has succeeded, even in advanced cases, in attenuating the night sweats, arresting hemoptysis, and curing the digestive disturbances, but his most remarkable successes were obtained in the earlier stages. He described twenty cases in detail. Tentative treatment in this line has already been made by Rush, Watson, McDowell, Ham and others, and more recently by Miquel and Rueff with mercuric iodid sprays and Grande with sublimate and methylene blue.

Waning Popularity of Koch's Tuberculin.—As to Koch's new tuberculin, the editors of the *Deutsche Medicinische Wochenschrift*, after having devoted considerable space to papers upon the subject, have now resolved to close their columns for a time to its further consideration. It will take years to really decide the therapeutic value of the new serum, and discussion at present can only be illusory, the personal feelings of the observer too greatly influencing his judgment as to results. The use of the old tuberculin for diagnostic purposes seems to be thoroughly disapproved of here in the clinics for internal medicine. The reaction which occurs after the injection of tuberculin when tubercle bacilli are present is considered to be due to a necrosis of tissue around the bacilli and the absorption of toxic products therefrom. Such a septic reaction can not be without danger, and necrosis of tissue may cause the further absorption of bacilli into the lymph or blood vessels and so institute an acute process. As the majority of people have encapsulated bacilli in the apices of the lung or somewhere in the bronchial glands without being in the slightest sense tuberculous, the recurrence of the reaction can not be said to be definitely diagnostic of active tuberculosis. In cases where the bacilli have been completely shut off from the possibility of doing any harm by Nature's protective barriers of inflammatory lymph, there is danger that the quiescent condition may become active under the influence of the injected toxins. The injections are practically considered unjustifiable, except in the determination of the etiology of such serious affections as pleurisy or ascites where the patient's dangerous condition makes an experimental diagnosis with tuberculin less risky.—*Medical News*, October 23.

Products of the Tubercle Bacillus and Serum Therapy.—A. E. de Schweinitz and Marion Dorset have succeeded in isolating the special substance contained in or secreted by the Koch bacillus which causes the necrosis apparently necessary for the progress of the tuberculous infection. It is a definite, crystalline, soluble substance with the chemic formula $C_7H_{10}O_4$, which coincides with an incomplete acid of the fatty series, teraconic acid. This substance is found constantly in the culture-fluid, but the bodies of the bacilli only contain traces of it. It produces chills, hypothermia and dyspnea in sound and tuberculous guinea pigs. Injected directly into the liver it produces necrotic foci. After filtering the cultures, the bacilli were washed in cold water, and a hot aqueous extract then made. This extract contained an albuminoid which produced several times in succession the tuberculin reaction experimentally. Koch's first tuberculin ceased to produce any reaction after one or two injections, because it contained the necrosing, hypothermising principle described above, while the albuminoid extracted from the bodies of the bacilli produces the opposite effect. These two principles which seem very active, were both obtained from attenuated cultures. The writers have also succeeded in obtaining experimental immunization (horses) and, by the Brieger Boer method, have secured a grayish powder as a precipitate of the serum of the immunized animals, giving the biuret reaction, which they consider the specific antitoxin, as it produces exactly the same immunizing effects as the serum. Their experiments encourage the belief that as serotherapy becomes perfected we can hope for the day when it will be practicable to apply it to man.—*Presse Méd.*, January 12, from the *Cbl. f. Bact.*, 1897, No. 8.

The Diagnostic Value of Koch's Tuberculin.—Time has elapsed sufficient to allow a quite accurate estimate of the value of Koch's discovery, in its immediate practical bearing upon medical art. No one can deny that, beyond this valuation, there is a reasonable expectancy of great good to be developed later, on the lines laid down by Koch, and especially with regard to other diseases than tuberculosis. In fact, the value of diphtheria antitoxin, which is, in a general sense, to be classed with Koch's products from the activity of tubercle bacilli, is almost beyond dispute. Therapeutically it may be said that the tuberculins from time to time offered, have not justified the claims of their originators, although there is some support for the argument that benefit has occurred in incipient cases. However, it must be remembered that the average patient with incipient tuberculosis, either so-called from clinical observation or well established, has a fair chance of recovery from purely hygienic measures, if he can fight for his life without handicap. Diagnostically, the tuberculin test has been of untold value in veterinary practice, by enabling the early detection of tuberculous sources of milk and beef. The almost unanimous testimony of veterinarians and others who have had experience with this use of tuberculin, is that it is practically infallible. There is a considerable prejudice against the use of tuberculin as a diagnostic measure for human beings. This prejudice is found even among those who had the most glowing hopes of the benefits of tuberculin, though it may, in some degree, represent a reaction due to the disappointment in regard to therapeutic results. Many believe that the use of tuberculin may so depress a patient who is in a weak but not positively tubercular state, that they prefer to leave the decision to the further progress of the case, meanwhile giving the patient the benefit of the doubt by taking all possible precautions against the growth of a tubercular process. Maragliano gives an adverse criticism of Koch's new tuberculin, disputing both the claim that the new product contains active substances not obtainable by the former method of solution with glycerin, and that it is innocuous. Maragliano states that the apparent immunity from bad side-effects is merely due to diminished dosage. However, Maragliano makes an assertion which may be the germ of an important truth, that it is not necessary to obtain a marked reaction with tuberculin, but that we should use a dose below that required to produce conspicuous phenomena. This is certainly in line with general experience as to medical agents, that the early doses though producing picturesque effects are dangerously large and therapeutically inferior to those which have no obvious immediate result. A recent experimenter has found that some serums or bacillary extracts are not free from living bacteria, and that they are thus a positive source of danger, while others are inert. It is to be deplored that the history of such products is blotted at frequent intervals with the manifestations of a mercenary and commercial spirit, which has extended even to members of the medical profession. Meantime we must admit that the chapter is unfinished, that much is to be hoped for from the labors of numerous scientific investigators at home and abroad, and that what has already been accomplished is of a value which seems small only in the light of the hopes of a revolution in medical practice. It seems to us that one item must be considered in weighing the probable results of combatting tuberculosis with artificial products from its bacilli. The corresponding natural products have no action to prevent a second attack, or to limit the existing attack of tubercular disease; in fact, they decidedly favor the development of further tubercular trouble.—*American Therapist.*

Toxicity of Caseous Patches.—Rosa has been investigating the toxicity of caseous tuberculous patches in man, with which he has inoculated thirty rabbits. The results were negative in every instance. The organism therefore has the dual power of killing the bacilli of tuberculosis and of attenuating or destroying the toxic products originating in the bodies of the dead bacilli.—(Italian Cong. of Surgery. *Gaz. d. Osp. e d. Clin.*, November 14.).

New Publications.—The following new monthly journals are quoted among our exchanges: *Hospital Life*, Chicago, devoted to the interests of hospitals, etc.; *Journal of Applied Microscopy*, Rochester, N. Y.; *The North American Journal of Diagnosis and Practice*, St. Louis; *The Wisconsin Medical Recorder*, Janesville, Wis. The subscription price for either of these is $1 per year.

A General Denial.—The *Medical News* has its little story about drug-giving that has the flavor of one of Dr. Oliver Wendell Holmes' sayings. It runs as follows: "Once upon a time when General Sherman was ailing and under the care of a medical friend of ours for quite a long time, he said, 'Doctor, I do not seem to be getting any better for all your medicines.' 'Well, General,' was the reply, 'perhaps you had better take Macbeth's advice and throw physic to the dogs.' 'I would like to do so, Doctor, but there are a number of valuable dogs in this neighborhood.'"

Three Thousand Dollars for a Sprained Ankle.—At first thought, the supreme court of Minnesota says, it would seem that $3,000 for what counsel called "a sprained ankle" was much too large. But it believes that "sprains" may often be much more serious than broken bones, and it holds that the evidence in the recent case of Christian v. the City of Minneapolis justified a verdict of $3,000 for the so-called "sprained ankle," and that the damages awarded were not so excessive that it would be warranted in disturbing the verdict.

Effect of the Aldehydes and Ketones on Micro-organisms.—Tschugaew states the following conclusions as the results of extensive tests on sixteen varieties of micro-organisms: The toxicity depends upon the aldehydes and diminishes with their increasing molecular weight, and still more when hydroxyl is combined with the aldehyde molecule. On the other hand, if phenyl is combined with the molecule the toxicity is increased, as is also the case with chlorin and bromin.—*St. Petersb. Med. Woch.*, October 30.

Radiography.—Kelsch found in examination of 124 young persons, none with clinical symptoms of pulmonary lesions, that fifty-one were affected with slight abnormalities, decreased transparency of bronchial adenopathy. He suggests fluoroscopy as a valuable aid in determining the pathologic future of the young. Its importance is evident in eliminating young men with a predisposition to tuberculosis in examining for military service. . . . . Vaillant places a sheet of lead between the sensitive plate and its support in radiography of the plevis, which reduces the time of exposure one-half and renders the negative much more distinct.—*Bull. de l'Acad. des Méd.*, December 21.

Transplantation of Bones from a Dog.—In 1891 Dubar removed five of the small carpal bones from a ten year old girl with tuberculosis of the right wrist, curetting the ends of the bones of the fore arm and metacarpus, and substituting five pieces taken from the lower end of the femur of an eight-day-old dog freshly killed. The wound was sutured and drained; it healed rapidly and perfectly. He never expected to see those bones again, but when he met the patient recently he had a radiograph taken of the wrist, which showed the implanted bones, exactly as first placed, connected by new connective tissue, a third larger in size, and grown into the metacarpal. The joint is movable, painless, and no inconvenience is experienced in sewing or knitting. The favorable results secured should encourage others to follow the same plan.—*Bull. de l'Acad. de Méd.*, *Deu. Med. Woch.*, December 23.

Experimental Immunization with the Cellular Extracts of Bacteria.—Further experimentation is reported with Büchner's process of mechanical trituration of bacteria with granite sand, compressing the mixture under high pressure, and obtaining thus the cellular extract, the plasmin of the microbes. Positive results were secured with cholera and typhus plasmin. Guinea pigs injected presented the same lesions as if they had received intraperitoneal injections of the living bacilli, and with repeated doses were rendered immune to infection from a ten-fold fatal dose. The results were negative with staphylo- and anthrax plasmin. Of the seventeen guinea pigs injected with tuberculosis plasmin, five are still living. The rest succumbed, although not until long after the control animals. It was found innocuous administered to tuberculous individuals, but the doses were necessarily too small to accomplish the results obtained experimentally.—*Presse Méd.*, December 11, from *Muench Med. Woch.* of Nov. 30, 1897.

Special Delusions as Defenses.—If the defendent had certain special delusions which completely possessed him, but was perfectly sane on all other subjects, as was contended in the case of People vs. Hubert, then he must, the supreme court of California holds, December, 1897, be judged as though the facts with respect to which the delusions existed were real. Of course, if no partial insanity existed, intimate acquaintances could know nothing of it, and the fact that they did not would be some proof that the defendant had no such delusions, which, the court holds, would render evidence of that character admissible. But matters of science, such as the pathology of mental diseases, the court declares, are always to be proven, and are treated as matters of fact, with regard to which the trial court should not instruct the jury. The fact that these matters are discussed in legal treatises or judicial opinions, it adds, does not convert them into propositions of law, though in some other jurisdictions there is not the same objection to such instructions. The supreme court further maintains that it must be held that conceding that the act was the offspring of an irresistible impulse, and the impulse was irresistible because of mental disease, still the defendant must be held responsible if he at the time had the requisite knowledge as to the nature and quality of the act, and of its wrongfulness. It declares it an impracticable rule which would leave it to the jury to say whether the act was the offspring of insanity; meaning, whether the defendant would have committed the act had he not been insane. It says that there are many degrees in mental unsoundness, and, however slight the defect, only Omniscience can say whether the act would have been committed had the taint not existed.

The Coin Rolls of the Baron's Blood.—Not long ago one of the distinguished clinical professors was summoned to the house of the Austrian member of the famous banking family of Rothschild. He was accompanied by a younger member of the profession who, while his chief was making the general clinical examination, proceeded to examine the baron's blood. The banker was extremely interested in the procedure, and when the examination was concluded asked what he had found. The assistant replied that he had found everything perfectly normal and healthy; that there was the usual number of red blood corpuscles, showing no marked differences in size or shape, and there was a very normal tendency to the formation of rouleaux. The distinguished patient, who is well acquainted with the hereditary failing of his family in the matter of successfully forming money rouleaux, but who did not realize that this tendency was so outspoken that it could be discovered on microscopic examination of his blood, was very much amused. He was at first inclined to consider the expression as not quite serious, and as meant to stave off questions on the part of an inquisitive patient. When assured, however, that the description was eminently scientific, his admiration for the "new medicine" was correspondingly increased. "What is bred in the bone, will out in the blood" I suppose received a striking exemplification for him. When the visit was over and the doctors were leaving, the fee the younger man found in the envelope handed him by the baron's secretary was not smaller for his chance excursion all unwitting into the atavistic peculiarities of the Rothschild family in his perfectly commonplace description of the results of a blood examination.—*Medical News.*

Therapeutic Ferments and "Local Diabetes."—"Animal life is fermentation. Normal fermentation is health; abnormal is disease. . . . It is possible to substitute a healthy fermentation for a morbid." Proceeding from these premises Backer, Charlier and Bruhat have been applying the typic ferment, *saccharomyces cerevisiæ*, to the treatment of tuberculosis and cancer since 1892, and reported at the Moscow Congress that they have obtained many cures or remarkable improvement in both diseases, selecting severe cases for the tests. The ferment is injected subcutaneously in small doses, and during treatment the diet is extremely rich in glycogenic substances and starches. Sixty cancerous tumors thus treated have resulted in eighteen cured for several years. In one case of multiple tumor formation the disease was arrested for ten months. In tuberculosis, 75 per cent. were cured, or notably improved, half of them cases hitherto supposed fatal. Backer stated five years ago that a probable explanation of the sterility of some women was a lack of glycogenic elements in their uterus, which seems to be confirmed by Brault's announcemant that the glycogenesis in a neoplasm is in exact proportion to the rapidity of its development (*vide* Journal, Vol. 28, page 1093). Backer has also noted the fact that the glycogenic organs are the chosen seat of neoplasms and calls cancer "local diabetes." The subcutaneous injection of pure ferments transforms the glycogenic substances into alcohol and its subproducts, which he believes have a neutralizing power in the nascent state.—*Journal d'Hygiène*, October 21.

Suprarenal Extract in Menacing Death from Chloroform.—Dogs were chloroformed until the circulation and respiration ceased, and then in thirty seconds injected with 1 to 2 grams of a 1 per cent. suprarenal extract, in the vena jugularis, restoring them to life. Intravenous injections were found the most effective. The powerful effects obtained even with these small amounts prove that the substance is not innocuous and should be limited to small doses. Mankowski therefore recommends that freshly prepared, sterilized, suprarenal extract should be at hand at every chloroform narcosis, to use promptly in case of menacing danger, adding that the best results are attained by combining the intravenous injection of the extract with simultaneous massage of the heart and subcutaneous infusion of salt solution.—*St. Petersb. Med. Woch.*, October 30.

Overworked Pharmacists in New York.—A bill in the New York legislature has for its object a shortening of the hours of labor of druggists' assistants. The bill provides that no pharmacist, drug clerk or other employe in a drug store in the city of New York shall work more than ten hours a day on week days, excepting Saturdays, when the time shall be twelve hours. On Sundays and legal holidays the time shall be six hours. All such employes are prohibited from sleeping in any store, room or laboratory where drugs are stored or compounded, the Board of Health is to enact rules and regulations governing the enforcement of the law. The bill has been prepared at the request of some of the druggists and drug clerks in the borough of Manhattan. So far as is known there has been no action in other localities among either the druggists or their clerks. The bill as it was introduced is not so radical as it was at first intended that it should be. Some of the Manhattan drug clerks wanted a bill presented that would make necessary the closing of drug stores at certain hours of the day as well as on Sundays. This bill was thought to be too drastic, and the measure as introduced is a compromise.

Gleanings.—Dysentery successfully treated with three rectal injections of antipyrin a day, 5 grams to 250 grams water, retained fifteen minutes. *Semaine Méd.*, October 27.——Fresh air cure successfully applied to various protracted and subacute infections of childhood, hereditary syphilis, whooping cough, chronic gastro-intestinal affections, etc. *Therapeut. Woch.*, November 14.——Bruns' airol paste found extremely beneficial in ophthalmology, substituting linim. exsicc. Pick, for the mucilage. *Vide* Journal, Vol. xxix, page 34.——Examination of the anus facilitated by inserting the finger in the vagina, the patient in the decub. dorsal. with pelvis elevated. ——The blood of diabetics decolorizes methylene blue solution even after all traces of sugar has disappeared from the urine. 20 cm. blood to 1 c.c. methylene blue, 1 to 6,000 solution. *Deutsche Med. Woch.*, November 25.——The lypolisis in mixtures of blood and chyle through which air has been conducted for twenty-four hours, results in the production of a diffusible substance that dissolves in water, the nature of which is still undetermined. *Ibid.*——Systematic alimentation with collagenous substances supplementing a good general diet found effective in promoting healthy growth of hair-covered surfaces. Suggested also as beneficial in arteriosclerosis. *Gaz. Med. Liége*, November 25.——Fourth case on record of diphtheroid syphilis simulating true croup. Cured with specific antisyphilitic treatment. *Journ. des Sc. Méd. de Lille*, November 20. ——Prompt cure of eczematous external otitis with ten-minute baths of warm 0.5 per cent. solution of sodium fluorid.——Kühnau announces the negative results of the examination of 169 patients to determine the clinical and diagnostic value of bacteriologic investigation of the blood. *Ztschrft. f. Hyg. u. Inf.*, No. 3——Remarkable success of ichthyol in two cases of chyluria; one, hematochyluria filariensis. One-half to two grams a day in pills. *Therap. Woch.*, December 12.

The Library of the Chicago College of Physicians and Surgeons.—This library was begun in a serious way in August, 1895, when a trained librarian was engaged, and the books belonging to the library were classified, accessioned and catalogued. The Dewey decimal classification was used and has proved adequate for this small collection. The library has grown by donations from the friends of the college, and a few small purchases, until now it numbers 1,752 bound volumes. In addition to hese, unbound volumes and reprints bound in pamphlet cases ill shelf room enongh to hold 2,500 bound volumes. The accessions during the year have not been large: 292 bound volumes and about 2,000 jonrnals. Twenty-seven medical ournals are received regularly. The bound literature is carefully indexed by anthor and snbject, part of it analytically. There are about 4,000 cards in the catalogue. The average number of students using the library each day has increased from twenty-six during 1896, to forty a day during 1897. Several classes do library investigation. At present the text-books and medical journals are the most used. The more recent books are put on reference shelves and are always accessible to the students for comparison and reference. The ibrarian will promptly acknowledge the receipt of any donations which the friends of the college are willing to give. Reprints are especially desirable, each one being treated in the catalogue as a book. The librarian is especially anxions to secure the following serials: *American Journal of Medical Sciences*, Vols. 1–22 inclusive, and years 1893 to date; *Annals of Surgery*, Vols. 1, 2 and years 1893 to date; *Boston Medical and Surgical Journal; Edinburgh Medical Journal*, 1828 to date; *Lancet* (London) 1835 to date; *New York Medical Journal*, Vols. 1–47, 56–59, 61–2; *New York Medical Record; Therapeutic Gazette*, Vols. 1–3. Although these are needed to help complete one department of the library, any medical literature is acceptable. The library has a large number of valuable duplicates which are for exchange with other libraries or private individuals, a list of which can be obtained on application at the library. The library room has recently been decorated with some very fine photographs of medical men.

Address, The Librarian, College of Physicians and Surgeons, 813 W. Harrison St., Chicago.

Louisville.

Physicians' Right of Way.—An ordinance has been passed by the Common Council and is now in effect in Louisville, regulating the rights of way and permits therefor. Section 1 concerns the right of way of ambulances over any other conveyance, etc., while engaged in going for or conveying any sick and wounded. Section 2 concerns the wearing of physician's badge and the right of way granted such badge. Section 3 has to do with the issuance of permits to practice medicine. Section 4 requires the health officers to obtain a certified list of physicians licensed by the State Board of Health and practicing in Louisville, etc. Section 5 prohibits greater delay than five minutes to ambulances, etc., at railroad crossings, etc. Section 6 provides penalties for offenses against the ordinance.

State Medical College.—The Hon. J. H. Lackey of Trigg County has introduced a bill into the Legislature which provides for a free medical college in connection with the State Agricultural and Mechanical College at Lexington, Ky. The author of the bill contends that many yonng men are deterred from taking a course in medicine because of the fees, that there are free schools for nearly all trades, arts, sciences and professions except that of medicine, and that the conditions are favorable at present, without extra expense in regard to the buildings, to establish a medical school in connection with the above College. The bill states that as there is already taught in the College the following branches, chemistry, anatomy, physiology, botany, zoology, histology and microscopy, there would only be required the addition of snrgery, theory and practice of medicine, materia medica, obstetrics and demonstrative anatomy. It provides for the establishment of the additional branches and that the conrse of study leading to the degree of M.D. be provided for as one of the courses of the College, and that a sum of money not to exceed $10,000 be appropriated for the purpose. Under its provisions each county in the State is entitled to place and maintain as matriculates in the school, two properly prepared young men or women, free of charge for fees during the time necessary to complete the course of study required. Appointments are to be made upon competitive examination by the board of health of the respective counties. Examinations shall cover the requirements for entering the freshman class of the College. Appointments shall be open to both sexes and the examinations held at a convenient place in each county at a date not later than September 15 of each year. The Faculty of the College shall be elected by the State Board of Health, subject to the approval of the Trnstees of the Agricnltural and Mechanical College, who shall have control of the management of the medical school. No professor shall be removed without the consent of the State Board of Health. It is provided that the $10,000 shall be paid the Treasurer of the Agricultural and Mechanical College upon the passage of the bill, and used by the Board of Trustees to establish and maintain a high grade medical college. Immediate steps are to be taken to have the medical department ready for the reception of pupils by Oct. 1, 1898. Provision is made for the occupancy of any unused buildings or rooms at the College as at present, and for the building of additional buildings as the growth of the medical department will warrant.

Abortion.—In the Senate, Mr. Petrie of Todd Connty introduced a bill to prevent criminal abortion and to punish those guilty of this offense. This bill is introduced as a result of vigorous work on the part of the Kentucky State Medical Society, throngh a special committee appointed for that purpose, and through the State Board of Health, by its able secretary, Dr. J. N. McCormack. Under the present law it has never been possible to obtain a conviction because of technicalities, and prosecution can only be instituted in case of death of the mother. It is greatly to be hoped that this bill will pass.

Mathews.—Dr. Jos. M. Mathews is in Pittsburg this week as the guest of the local medical society, before which he delivered the annual address.

Detroit.

At a regular meeting of the Detroit Medical and Library Association, January 17, Dr. Don M. Campbell read a paper entitled "Headaches." In substance he spoke as follows; The subject is far reaching and has a bearing on the two great wings of medicine, viz., surgery and internal medicine, as well as upon all the various specialties. Considered in a broad and general way the most practical division of the subject from an anatomic standpoint is to consider headache as either intra- or extracranial. In the intracranial headache the variations of the intracranial circnlation and pressure are the points of pathologic importance, whereas in the extracranial varieties the variations of pressure are not of so much importance, but a consideration of the various causes of reflex irritation together with that class of constitutional maladies of the rheumatic and gouty types has especial significance. There is no absolutely fixed demarcation between these two forms as they run the one into the other along the line of the nenralgias of the trigeminns nerve. On the one hand a reflex irritation may travel along the intracranial recurrent branches of the trigeminus and be intracranial, and likewise an intracranial lesion may manifest itself by pain reflected over the extracranial branches of the same nerve. Clinically headaches are organic or inorganic; by the former being meant those cases originating in an organic extracranial lesion, viz., meningitis, cerebral tumor, cerebral abscess or tubercular infiltration, etc.; by the latter, all the reflex headaches and neuralgias and the diathetic, toxic, febrile, neurasthenic and hysteric varieties. In the latter varieties of headache the most important thing to determine is whether or not the headache be reflex in its character or whether it have its etiologic factor in a disturbance of nutrition.

The announcement that Dr. S. P. Duffield intends to resign as Commissioner of Health for the city of Detroit will be received with deep regret by the profession. Dr. Dnffield assumed the duties of his position in agitated times and has exemplified the possession of that admirable gift of carrying in his right hand, gentle peace, and has demonstrated its power to silence envious tongues. During his term of office the sanitary affairs of the city have been conscientiously and capably administered. Dr. Duffield will carry with him to whatever field of labor he repairs, the good will and approval of his professional friends.—*Medical Age.*

Health report for week ending January 15: Deaths 79, under 5 years 30. Births, male 30, female 34; contagious diseases diphtheria 17, scarlet fever 49; deaths from diphtheria 3, scarlet fever, none.

Societies.

The following meetings are noted:

California.—San Luis Obispo Medical Society, January 14.

Connecticut.—Windham County Medical Association, Hartford, January 18.

Illinois.—Brainerd District Medical Society, Mason City, January 27; Chicago Medical Society, January 26; Physicians' Club of Chicago, January 31.

Indiana.—Marion County Medical Society, Indianapolis, January 18; Montgomery County Medical Society, Crawfordsville, January 18; Purdue Pre-Medical Society, Lafayette, January 14; St. Joseph County Medical Society, South Bend, January 25; Tippecanoe County Medical Society, Lafayette, January 17.

Iowa.—Blackhawk County Medical Convention, Waterloo, January 14; Council Bluffs Medical Society, Glenwood; Jasper County Medical Association, Newton, January 18; Polk County Medical Society, Des Moines, January 11; Sioux Valley Medical Association's semi-annual convention, Sioux City, January 21.

Kansas.—Golden Belt Medical Association, Solomon City, January 13; Leavenworth County Medical Society, Leavenworth, January 13.

Kentucky.—Kentucky Midland Medical Society, Shelbyville, January 13; Paducah Medical and Surgical Society, January 19.

Maine.—Maine Academy of Medicine, Portland, January 10,

Maryland.—Johns Hopkins Medical Society, Baltimore, January 18.

Massachusetts.—Hampden County Medical Association, Springfield, January 17; Hampshire County Medical Society, Springfield, January 12; Millers River Medical Society, Orange; Worcester District Medical Society, Worcester, January 12.

Minnesota.—Southwestern Minnesota Medical Association, Worthington, January 11.

Missouri.—Kansas City Academy of Medicine, January 11; St. Louis Medical Society of Missouri, St. Louis, January 22.

Nebraska.—Lincoln Medical Society, January 11.

New Hampshire.—Center District Medical Society, Concord, January 11.

New Jersey.—Burlington County Medical Society, Mount Holly, January 18.

New York.—Albany County Medical Society, Albany, January 19; Binghamton Academy of Medicine, January 18; Chenango County Medical Society, Norwich, January 11; Duchess County Medical Society, Poughkeepsie, January 12; Dunkirk and Fredonia Medical Society, Dunkirk, January 19; Elmira Academy of Medicine, January 12; Jefferson County Medical Society, Watertown, January 11; Kings County Medical Society, Brooklyn, January 18; Newburgh Bay Medical Society, Newburgh, January, 11; Oneida County Medical Society, Utica, January 11; Oneonta County Medical Society, Oneonta, January 25; Ontario County Medical Society, Canandaigua, January 11; Practitioners' Society, Rochester, January 13; Ninety-second annual meeting, of the Medical Society of the State of New York, Albany, January 25, 26 and 27; Syracuse Academy of Medicine, January 11; Wayne County Medical Society, Newark, January 18; Westchester County Medical Society, Mount Vernon, January 18.

Ohio.—Clark County Medical Society, Sandusky; Cleveland Medical Society, January 14; Dayton Academy of Medicine, January 24; Eastern Ohio Medical Association, Toronto, January 11; Lorain County Medical Association, Lorain, January 11; Lucas County Medical Society, Toledo, January 7; Mercer County Medical Society, Greenville, January 16; Muskingum County Medical Society, Zanesville, January 13; Toledo Medical Association, January 14.

Oklahoma.—Central Oklahoma Medical Association, Enid.

Pennsylvania.—Allegheny County Medical Society, Pittsburg, January 18; Beaver County Medical Society, Beaver Falls, January 13; Berks County Medical Society, Reading, January 11; Blair County Medical Society, Altoona, January 20; Bradford County Medical Society, Towanda, January 11; Cumberland County Medical Society, Carlisle, January 11; Delaware County Medical Society, Chester, January 12; Lebanon County Medical Society, Myerstown, January 11; Lehigh Valley Medical Association, Easton, January 25; Luzerne County Medical Society, Wilkesbarre, January 12; West Branch Medical Society, Sunbury, January 11.

Wisconsin.—Dodge County Medical Association, Beaver Dam, January 10; Fox River Medical Association, Green Bay, January 28.

CHANGE OF ADDRESS.

Bradford, H. W., from Boston, Mass., to 120 Paul Gore St., Jamaica Plain, Mass.

Burchard, T. H., from 53 W. 52d St. to Buckinghan Hotel, New York.

Clausen, J. J., from New Ridge Building to 501 Rialto Building, Kansas City, Mo.

Cox, G. W., from 2258 Wabash to 2945 Groveland Ave., Chicago, Ill.

Dargatz, D. G. G., from Ridge Bldg. to 4 E. 10th St., Kansas City, Mo.

Ewing, W. B., from Canonsburg to 515 Penn Ave., Pittsburg, Pa.

Furay, C. E., from Chadron, Neb., to 2287 Seward St., Omaha, Neb.

King, Thomas, from Piqua, Ohio, to West Mansfield, Ohio.

Kay, T. W., from 206 Penn Ave., to Scranton Private Hospital, Scranton, Pa.

Louis, I. C., from 354 Tremont St. to 210 Huntington Ave., Boston, Mass.

May, L. F., from 191 Fullerton Ave. to 910 Irving Park Boul., Chicago.

McBride, J. H., from Hartland, Wis. to Pasadena, Cal.

Stockton, Sarah, from 227 to 413 N. Delaware St., Indianapolis, Ind.

Woodward, J. H., from Burlington, Vt. to 58 W. 40th St., New York.

Woodward, A. P., from 21 Powell St. to 1228 Sutter St., San Francisco, Cal.

LETTERS RECEIVED.

American Therapeutic Co., New York, N. Y.; Allen, E. N., South McAlester, I. T.; American Sports Publishing Co., New York, N. Y.

Breuer, Chas. H., Hallettsville, Tex.; Bovinine Co., New York, N. Y.; Bumgarner, A. E., Piketon, Ohio; Baker, J. C., Co., Philadelphia, Pa.; Brown, Warren, Tacoma, Wash.; Benson, O. O., Keokuk, Iowa; Buland, G. L., Greenwood, Wis.; Buck, M., Philadelphia, Pa.; Bond, Abby M., Syracuse, N. Y.

Cary, R. G., Sargho, Ky.; Cleaves, Margaret A., New York, N. Y.; Curtis, W. K., Midland, Texas; Cram, C. W., (2) Davenport, Iowa.

Dewey, Richard, Wauwatosa, Wis.; Denison, Charles, Denver, Colo.

Evans, George, Columbus, Ohio; Elliott, H. G., New York, N. Y.

Frey, C. L., Scranton, Pa.

Gibbons, Henry, Jr., San Francisco, Cal.

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Rohe, George H., Baltimore, Md.; Rogers, W. B., Memphis, Tenn.; Reynolds, Dudley S., Louisville, Ky.

Saunders, W. B., Philadelphia, Pa.; Smith, R. Walter, Clarkson, Texas; Sayre, Reginald H., New York, N. Y.; Scheppegrell, W., New Orleans, La.; Seal, I. N., Hackleman, Ind.; Sternberg, George M., Washington, D. C.; Smith, E. B., Detroit, Mich.; Stearns, F., & Co., New York, N. Y.; Swasey, George B., Portland, Me.; Spaulding, Warren C., New York.

Talbot, E. S., Chicago, Ill.

Verbryck, G. G., Cambria, Wyo.

Welch, Wm. H., Baltimore, Md.; Wilson, J. T., Sherman, Texas; Woodward, J. H., New York, N. Y.; Whalen, Chas. J., Chicago, Ill.; Wheeler, F. B., Dows, Iowa; Wall, Charles D., Columbus, Ga.

THE PUBLIC SERVICE.

Notice.—An Army Medical Board will be in session at Washington City, D. C., during the month of May, for the examination of candidates for appointment to the Medical Corps of the United States Army, to fill existing vacancies.

Persons desiring to present themselves for examination by the Board will make application to the Secretary of War, before April 15, 1898, for the necessary invitation, giving the date and place of birth, the place and State of permanent residence, the fact of American citizenship, the name of the medical college from which they were graduated, and a record of service in hospital, if any, from the authorities thereof. The application should be accompanied by certificates based on personal acquaintance, from at least two reputable persons, as to his citizenship, character and habits. The candidate must be between 22 and 29 years of age, and a graduate from a Regular Medical College, as evidence of which, his Diploma must be submitted to the Board.

Successful candidates at the coming examination will be given a course of instruction at the next session of the Army Medical School, beginning in November, 1898.

Further information regarding the examinations may be obtained by addressing the Surgeon-General, U. S. Army, Washington, D. C.

Geo. M. Sternberg,
Surgeon-General, U. S. Army.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from January 8 to 14, 1898.

First Lieut. Irving W. Rand, Asst. Surgeon, is relieved from duty at Ft. Huachuca, Ariz., and ordered to Ft. Du Chesne, Utah, for duty.

First Lieut. Charles E. D. Flagg, Asst. Surgeon, is relieved from duty at Ft. Du Chesne, Utah, and ordered to Columbus Bks. Ohio, for duty.

Capt. H. C. Fisher, Asst. Surgeon, is granted three months and two days' leave, to take effect on or about Feb. 1, 1898.

Capt. Henry A. Shaw, Asst. Surgeon, will report in person at Ft. Crook, Neb., for temporary duty at that post, and upon the arrival there of First Lieut. Deane C. Howard, will return to his proper station at Ft. Snelling, Minn.

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ORIGINAL ARTICLES.

THE HISTORY AND DIAGNOSIS OF A CASE OF CARCINOMA OF THE STOMACH AND THE FIRST OPERATION OF EXCISION OF THE STOMACH IN AMERICA.

BY HUGO SUMMA, M.D., AND A. C. BERNAYS, M.D.

HISTORY OF THE CASE AND DIAGNOSIS.

By Hugo Summa, A.M., M.D., Professor of Pathology and Clinical Medicine at the Marion-Sims College of Medicine, St. Louis, Mo.

The patient was Mr. Conrad Beck, 42½ years old, a German, machinist, married, and the father of four children. The anamnesis shows a very good family history. The patient's mother is still living, while his father died of senile marasmus. All of his brothers and sisters are in good health and there is no inclination to diseases of the stomach in any member of the family.

The patient has always enjoyed good health, with the exception of an attack of measles when a boy. Does not remember any trauma, either in the region of the stomach or in any other part of his body.

In the early part of June 1897, the patient noticed pain in the region of the stomach, particularly severe soon after eating, and also a somewhat impaired action of the bowels amounting to constipation. Both of these symptoms appeared somewhat abruptly. About three weeks afterward, on June 25, 1897, he had four gastric hemorrhages within a day and a half. The blood was light red without admixture of air. Dr. Louis H. Davis, who attended him at that time, estimated the amount of blood lost at one and one-half gallons. In the early part of July, I was consulted for the first time in the case. The symptoms at that time were chiefly subjective. He complained of pain, which was increased during digestion, in the region of the stomach, and also of pain on pressure near the junction of the cartilages of the eighth and ninth ribs of the left side. There was at no time an impairment of the appetite nor any vomiting, but there was obstinate constipation. No tumor was visible or palpable.

After a thorough deliberation, in which the differential diagnosis between cancer and round ulcer was carefully considered, a decision in favor of round ulcer was made and Leube's treatment was instituted. The severe hemorrhages preceding the first consultation seemed to preclude the investigation of the case by means of test meals. It was a reasonable expectation to clear up the diagnosis *ex juvantibus* by the Leube treatment, but this proved to be the misleading feature and for three months obscured the clinical observation of the case. Leube himself lays great stress upon the value of his method of treatment as a means of confirming a doubtful diagnosis of *ulcus rotundum;* in fact, he says that the favorable result of the treatment justifies a conclusion in favor of the positive existence of an *ulcus rotundum.* Boas considers the same conclusion justifiable when his method of treatment is beneficial in the same kind of a case. His treatment consists in gradually increasing doses of nitrate of silver. This method was applied after the case was turned over to my exclusive supervision, in November, and was followed by even better results than Leube's treatment, which had undoubtedly benefited the patient during the months of July and August.

After a second consultation in September, Fleiner's treatment was tried, because on account of the beneficial results obtained by Leube's treatment we were under the impression that the case was one of round ulcer. The Boas treatment, which was tried in November, was followed by the most encouraging improvement, but December 24 a gradual recurrence of the old symptoms was noticed.

It now seemed justifiable to risk the introduction of the stomach tube and this was done every day for two weeks beginning December 26. Through the tube, Ewald's test-breakfast or Riegel's test-meal was expressed for the purpose of gaining a knowledge of the motor, secretory and digestive functions of the stomach.

The result of these gastranalyses was always the same. The total amount expressed never exceeded 20 c.cm. Free hydrochloric acid was never present, nor was there any lactic acid. The total acidity varied between 10 and 20 per cent. Yeast fungi and sarcinæ were absent and only very few bacteria were found by microscopic examination. Remnants of meat and starch, well advanced in digestion, occurred and red and white blood corpuscles were found in the same relative proportion as in the blood in each specimen of the stomachic contents that were examined microscopically. Toward the end of the expression of the contents, a very slight hemorrhage was noticeable macroscopically but no trace of tissue could ever be detected.

After carefully weighing the symptoms that presented themselves in this peculiar case there were left three points that appeared more in favor of carcinoma than of ulcer. These were permanent absence of hydrochloric acid, no vomiting and the age of the patient, while the remaining symptoms could be explained as well under the assumption of ulcer as of carcinoma.

The patient had lost twenty-seven pounds in weight during seven and one-half months. There was a cachectic appearance gradually becoming apparent, while the anemia seemed to be disappearing when judged by the visible mucous membranes.

Based upon these carefully observed facts a final diagnosis was made of ulcerated cancer of the stomach located between the cardia and the pylorus. The patient was then sent to Prof. Bernays for an explorative section with a view of possibly removing the affected tissues.

THE OPERATION OF EXCISION OF THE STOMACH.

By Augustus Charles Bernays, A.M., M.D., Professor of Anatomy and Clinical Surgery at the Marion-Sims College of Medicine,
St. Louis, Mo.

It has been known for years that the entire stomach can be successfully removed in dogs, and that these animals remain alive in perfect health for years. The best known case is the Czerny dog who lived over five years without a stomach and was then in perfect health when killed for the sake of a scientific experiment. Portions of the stomach have been successfully excised in cancer cases by over 150 surgeons. The parts removed involved from one-tenth to eight-tenths of the organ. The entire stomach was successfully removed from a female patient aged 53 years, at Zurich, by Dr. Schlatter. Six months after the operation the woman had gained twelve pounds in weight and is now in good general health.

In all cases that have ever been operated upon suffering from cancer of the stomach, the exact portion of the stomach which was to be removed was determined after the abdomen was opened. It is practically impossible to predict in any case the operation which must be performed. I have usually preferred palliative gastro-enterostomy to a partial excision of the stomach and in some cases have been satisfied to merely curette away the masses of neoplasm which were found obstructing the pyloric orifice.

There is no doubt in my mind after an experience of more than seventy palliative operations that these measures have been of benefit to the patients in prolonging life and in alleviating pain. In some cases the results were simply wonderful. I saw a patient upon whom I had done a gastro-enterostomy gain thirty-five pounds in weight in about two months and another from whom I curretted away over a pound of tumor-mass within the stomach, gained twenty pounds in one month. Both patients died within the year from the continuation of the carcinomatous cachexia and the continued growth of the neoplasms. Palliative operations in cancer cases are never indicated when a radical and scientific operation can be performed. For instance in cases of cancer of the breast and in uterine cancers which come to us early enough we no longer remove the tumor alone, but always the whole organ. We are not justified in merely removing the whole of the diseased organ, we must also remove the lymphatics leading away from the organ as completely as possible. I invariably do this radical operation in cancers of the breast and also of the womb. In the latter class of cases I have abandoned the old vaginal hysterectomy in favor of the operation of removing the broad ligaments and the womb through the abdomen. My mortality in the latter operation is less than 10 per cent. and no doubt will continue to decrease with a larger experience and a better technique. The length of time that patients remain free from a return is certainly much increased and there is a chance for a radical cure

No kind of cancer is more certainly fatal than cancer of the stomach, and if the operation of gastrectomy can be successfully performed it must be done early and before the cachexia has brought the patient to the brink of the grave. As in other organs the total removal of the stomach is the proper operation in incipient cases. In fact, there can scarcely be a doubt in the mind of any medical man that if an excision of a cancer of the stomach is to be made at all it ought to be a total excision. Partial excisions must be abandoned, and in fact have been abandoned in favor of gastro-enterostomy, curettement or some other merely palliative measures of treatment. I have not done a pylorectomy for over three years and I find that the Germans have almost abandoned the partial resections of the stomach in favor of palliative measures.

The future treatment of incipient cancer of the stomach will be the total or nearly total excision of the organ. Our plain duty is to work toward a perfection of the technique of this operation. My object in reporting the following fatal operation is to add what I have learned to the very meager stock of information we have about this new operation and to make some suggestions tending toward an improvement of its technique.

The patient, whose clinical history is detailed by Prof. Hugo Summa, entered the Rebekah Hospital Jan. 9, 1898. He was carefully prepared for the operation of celiotomy in the usual way, by baths, a purge and antiseptic pack, and by a properly restricted diet. The operation was begun January 11 at 9 A.M. and primarily consisted in an explorative abdominal section in the median line between and extending from the ensiform process to the umbilicus. The hand having been introduced and made to explore the entire surface of the stomach, detected a hard umbilicated irregular tumor involving the entire minor curvature of the stomach excepting about one inch of the pyloric end. There were only three small indurated lymph glands, and they were situated near the major curvature of the stomach in the omentum majus. The whole mass was freely movable, except where it was bound down to the pancreas by adhesions. There were no symptoms of obstruction and, in fact, the pylorus was normal. The operation of gastro-enterostomy was thus plainly contraindicated and the only thing to be done was a removal of the cancerous growth. I hesitated, but the conclusion that the extirpation of the diseased organ was the only rational thing to do was inevitable and I proceeded with the operation. The first step was the transverse section of the pyloric extremity of the stomach, one inch from the duodenum. I next closed the two orifices made by the cut by means of clamps. The duodenal end was drawn out of the abdomen and

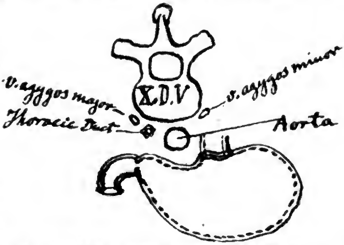
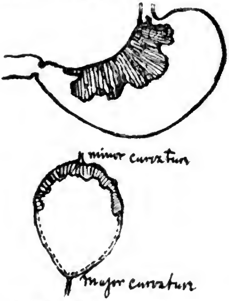


Fig. 1.—Diagram of horizontal plane at tenth dorsal vertebra. Distance from esophagus to pylorus shown in a normal case and is about one-fifth the length of the major curvature, usually not more than five inches.

placed upon the right side of the abdomen entirely out of the way. A large plug of gauze was inserted into the pyloric stump to prevent the escape of intestinal contents. The freeing of the posterior wall of the stomach from its adhesions to the pancreas was next done and was a piece of difficult dissection. I next ligated and cut off the stomach from its omental connections along the major curvature to the fundus. At this time, while drawing the fundus out of the cavity in order to ligate and cut off the gastro-splenic vessels and ligaments, a small quantity of gastric contents escaped, but was caught to a great extent upon pieces of gauze that were kept in readiness. The stomach was now free from all its connections excepting the minor curvature and the esophagus. There had been no hemorrhage of any account up to this time, as nearly all the vessels were tied before being cut. The entire operation was free from dangerous hemorrhage.

The separation of the minor curvature from the crura of the diaphragm, the aorta and the structures lying in front of the vertebral column was difficult only on account of the depth of the cavity, the necessity of operating in a badly illuminated field, so that the sense of touch was often a more reliable guide than sight. I succeeded in freeing the minor curvature up to the esophagus by means of short clips with the curved scissors. The cancerous growth had shortened the distance between the cardia and the pylorus to about four inches. It was evidently a cancerous ulcer which had a tendency to become scirrhous. The outer surface of the growth was hard, while the inner or mucous surface was ulcerated.



Figs. 2 and 3.—These diagrams show the manner and extent to which the stomach was involved in the neoplasm.

After the entire stomach was freed from all its connections I caught the esophagus with a pair of forceps and cut it across about one-fourth of an inch above the cardia and found a small tongue-like piece of the cancer had grown into the esophagus but had its pedicle in the stomach. I also left a small strip of stomach attached to the esophagus, which I intended to use as a handle by means of which I could pull down the esophagus. This slip proved to be too weak and was soon afterward cut away.

The next step in the operation was the bringing together of the stump of the pylorus and the esophagus. The pyloric stump was freely movable and easily drawn upward, but the esophagus proved well-nigh unmanageable on account of its elasticity and great tendency to slip away through the foramen ovale of the diaphragm. The toothed forceps with which the assistants pulled the esophagus downward slipped off several times during the suturing which I now began. The method which I adopted of making a direct union between the stump of the pylorus and the esophagus seemed to be easier of accomplishment than the plan which Schlatter adopted of bringing up a loop of the jejunum. There was quite a disparity in the lumina of the esophagus and the pyloric stump, but the esophagus just above the cardia is very lax and dilatable I could easily introduce three fingers without stretching it perceptibly. I have successfully united the ascending colon to the ileum, end to end, and found that the closure was entirely satisfactory. The method I used in this case was simply to make the stitches in the pyloric stump a little farther apart than in the esophagus. The stitches included all the layers of the wall excepting the mucosa. I united the posterior wall first by a series of stitches which were tied upon the mucous side. These stitches united more than half the circumference of the orifices. Next, three stitches were inserted on the lateral aspects. The knots were tied upon the outer surface

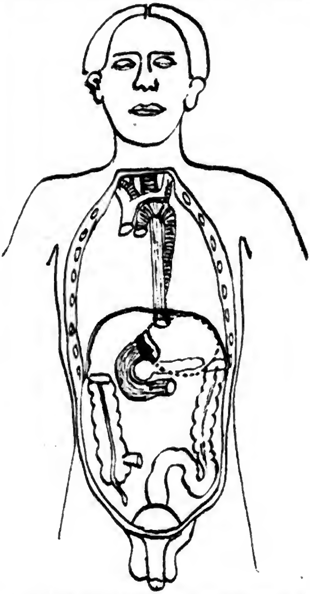


Fig. 4.—Diagram showing the stump of the pylorus pulled up and esophagus drawn out of the foramen ovale of the diaphragm.

of the canal. Lastly, three or four stitches were placed and tied externally upon the anterior aspect of the esophagus and the pylorus. The line of sutures was not as neat as I could have wished, but I was compelled to be satisfied with the work and as I will show later on the stitches held perfectly.

The space which was left after the removal of the stomach was filled out to a large extent by the transverse colon, the splenic flexure and the coils of the jejunum, which sank into the excavation of the diaphragm. I found it necessary, however, to fill up a part of the space by means of a gauze pack. The toilet of the peritoneum was made by means of dry gauze sponges. I use bi-sterilized gauze, made by Johnson & Johnson, of New York, which I found to be absolutely reliable. After the toilet had been most carefully completed I inserted two strips of the gauze, one upon each side of the line of union between the pylorus and esophagus. This was a precautionary measure and was intended to protect the general cavity against infection in case of a leak at the line of sutures. The ends of these two gauze strips as well as the ends of the gauze which lay between the transverse colon and the diaphragm were conducted out of the belly at the upper end of the median incision. The first incision was closed in the usual way up to the point of exit of the gauze drains. A large moist gauze dressing, which was held in place by a binder, was applied over all.

The entire operation had taken two hours and six minutes. Chloroform was the anesthetic used. Silk was used for all sutures and ligatures. An intravenous infusion of physiologic salt solution was made by Dr. Spencer Graves, who together with Dr. Robert E. Wilson and Dr. Frank M. Floyd, rendered me all necessary assistance. At the conclusion of the operation the patient was in fairly good condition; pulse was about eighty and of good volume. There was no pronounced shock, and indeed the patient rallied nicely from the immediate effects of the operation.

The patient was sustained by nutrient enemata and for the first twenty-two hours seemed to remain in the same condition, with the exception of an increased pulse rate, which ranged from 114 to 124 per minute. There seemed to be a fair chance for a successful termination. During the day, however, he grew weaker, complained of thirst and the pulse remained above 120 all the time. His temperature never reached 101 degrees and he succumbed about thirty-six and one-half hours after the operation.

We had no permission to perform a regular autopsy, but my assistants removed the gauze pack soon after death and found that there was no sign of peritonitis and that union between the sutured ends of the alimentary canal, which were in good apposition, was excellent. The cause of death is not quite clear, but I think that the long-continued chloroform narcosis and the impossibility of satisfactorily nourishing the patient, as well as the possibility of the absorption of some escaped stomach contents, must be held to be sufficient to explain the unfortunate result.

In future operations I shall use a rubber tube attached to a silk cord long enough to be passed up through the esophagus and out of the mouth. This tube I will leave in the duodenum, extending from about the beginning of the jejunum to near the opening of the larynx. By pulling it up into the pharynx nutrient predigested fluids can then be injected at regular intervals as may be deemed expedient.

In order to facilitate the suturing between the esophagus and the lower gut, be that the pylorus, the duodenum or the jejunum, I would suggest making the union before the stomach is completely cut off from the esophagus. By this means the esophagus can be pulled down and made accessible. Nearly all of the sutures can thus be inserted before the esophagus is cut off.

Union Trust Building.

THE PSYCHOLOGY AND PHYSIOLOGY OF THE LAYING ON OF HANDS AND OF HYPNOTISM.

Presented to the Section on Physiology and Dietetics at the Forty-Eighth Annual Meeting of the American Medical Association at Philadelphia, June 1-4, 1897.

BY RANDELL HUNT, M.D.

VICE-PRESIDENT OF THE SHREVEPORT MEDICAL SOCIETY AND MEMBER OF THE LOUISIANA STATE MEDICAL ASSOCIATION.

> "The smallest hurts sometime increase and rage
> More than all art of physic can assuage;
> Sometimes the fury of the worst disease
> The hand, by gentle stroking will appease."—*Solon.*

Socratic reasoning is being revived, and in the garb of Baconian induction is demonstrating particular truths and predicating general principles that astound even the learned, relegating to their proper place among the relics of barbaric times, intolerance, foolish ridicule, and impotent invective. No longer is the medical profession ready and eager to deride and martyrize a Harvey and a Jenner, nor a French Academy of Science to deny the actuality of meteorites; for science and wisdom walk hand in hand, giving to the world knowledge of universal truths, and power to observe and practice them.

Before man is in a position to take advantage of all these psychic facts that science is in some sort freeing from the mystery that has shrouded them, it is necessary for him to know the attributes and functions of mind, and so to appreciate his own potentiality and to cognize the harmony between individuality and nature. The correlative functioning of upper and lower brains—whether upper or lower—the interrelations of psychology and of physiology, become the matter for most close and searching investigation on the part of the student of the remarkable phenomena that are daily resultant from scientific experiment in the special fields under present consideration. Only by assiduous study of this nature can the scientist equip himself for individual attempt towards the solution of the human-enigma that still presents, despite all that has been achieved, the greatest difficulties and complexities.

The laying on of hands, hypnotism, normal sleep, spontaneous and artificial somnambulism, and dual consciousness, present such similar phases of mind conditions that I will endeavor to describe all as being subject to one general law, that of suggestion.

In doing this, first will be given a history of hypnotism; then sleep will be mentioned, dream consciousness, duality of mind; and finally an attempt will be made to demonstrate that through hypnosis and suggestion the different phenomena may be understood.

The history of hypnotism is as old as the history of the world, for the Chaldean priests, Brahmins and Parsi practiced this mode of treatment, while in China the curing of disease by the laying on of hands has prevailed for ages.

In the "Natural Law of Miracles," written in Arabic 400 years before Christ, not only is hypnotism mentioned, but the different methods of producing it described with an attempted physiologic solution of the psychic attitude. In Egypt friction during ablution was one of the great secret means of treatment, after which the patient rested on skins, and having indulged in prayer, prepared for sleep and awaited visions of Isis. Bernard de Claivaux, a French Cistercian monk, in 1146 said to the Alamannic people: "Ye soldiers of the Christ arise, and hurl down the enemies of the Cross!" Laying his hands on the blind and lame, he healed them, and the grateful people with tears and shouts proclaimed that the saints were with them.

Hippocrates, Aristotle, and Galen knew of the existence of somnambulism, but until Van Helmont and other modern authors recognized and studied the phenomena, no minute or accurate description was ever given of this condition.

Asclepiades of Bithynia obtained great renown as a physician in Rome by curing disease with frictions and the laying on of hands, at times producing by his methods sleep, which sleep he considered very salutary. For hundreds of years the kings of England and France cured scrofula (king's evil) by the touch of the hand, and writers of that time unite in attesting its efficiency.

The first authenticated cures by prayer and the laying on of hands in America were those performed by Alvar Nunez Cabaca de la Vaca, Alonzo dell Castillo Maldonado, Andres Dorantes and Estevanico, an Arabian negro, sole survivors of the unfortunate Narvaez expedition to Florida in the year 1535.

Valentine Graterakes, an Irish gentleman, in 1662, claimed to have had a dream, which he interpreted as a divine revelation, to the effect that he could cure disease by the laying on of hands, and many honorable witnesses bear testimony to his great success. The Lord Bishop of Derry in Ireland, in speaking of Greatrakes, says: "I was three weeks together with him at Lord Conway's, and saw him, I think, lay his hands upon a thousand persons; and really there is something in it more than ordinary; I have seen pains strangely fly before his hands, 'till he hath chased them out of the body—But yet I have many reasons to persuade me that nothing of all this is miraculous. He pretends not to give testimony to any doctrine; the manner of his operation speaks it to be natural; the cure seldom succeeds without reiterated touches; his patients often relapse; he fails frequently; he can do nothing where there is any decay in nature, and many distempers are not at all obedient to his touch." Joseph Glanville also speaks highly of Greatrakes.

Gassner, an ex-monk, conceived the idea that all diseases were due to possession by the Devil, and that they could be cured by exorcism, the truth of which he first demonstrated among his own parishoners. His cures caused such a great sensation that he went to Elwangen, but finally settled in Regenburg, where at one time he had ten thousand patients. Mesmer's attention being attracted to Gassner's remarkable cures, he went and observed his methods, and in an article afterward makes the important statement that Gassner's processes were in the main identical with his own.

Other instances could be presented showing the efficacy of the laying on of hands, but as the scope of this paper will not permit, I will at once proceed to analyze sleep and its cognate states, that the psychology and physiology of touch may be made clear.

Since a third of man's life is passed in slumber, it is equally important to physicians to understand thoroughly this condition, that they may the more perfectly appreciate the true relation of man to nature. Sleep is the quiescence of the nerves of sense and of the sensorium. It is more than a mere negation of waking, for it presents a positive side in dream, demonstrating that in this condition certain attributes, functions, and mental activities exist that either do not exist in the waking state, or are below the threshold of sensibility, i. e. of ordinary consciousness. The consciousness of waking is due to the activity of the cerebrum and the nerves of sense, while in sleep there is an inner-waking-dream; and if this inner-waking continues and is exalted, we must look for dream-consciousness in some other part of the brain than the cerebrum.

We have ideas in dreams or we would have no dreams, but as dream-images are confused, they are easily distinguished from the well regulated perceptive images of our waking consciousness, therefore must emanate from some part of the cerebro-spinal system from which we are practically excluded in waking life.

The dreams usually remembered are of a confused character, and ordinarily occur between waking and deep sleep, or between deep sleep and waking; and are insignificant, since they are connected with only a slight displacement of the threshold of sensibility.

A large percentage of dreams are not remembered, and as sense-perceptions seldom if ever pass out of recollection in a few hours, the only physiologic explanation is a different consciousness in the different organs in the dreaming and waking states. Du Prel pertinently says: "Deep dream must at the least depend on the activity of other folds of the brain than those in function while we are awake; possibly of another center altogether. For if we infer the similarity of the organ from that of the consciousness, the dissimilarity of the consciousness would imply the dissimilarity of the organ. And the failure of memory in the case of deep dream can only be ascribed to the want of a common organ with the waking consciousness, the survival of memory between the light dream and waking must result from at least partial community of organ. The withdrawal of the bridge of memory proves physiologically the change of organ, the preservation of the bridge a community of organ; but inasmuch as it is only with the change of an organ of whose nature we know nothing that the significant dream can occur, the logical possibility of the latter must again on this ground be admitted."

We, as physicians, know that this bridge of memory does fail between deep sleep and waking, for sometimes the dreamer will translate his dream into regulated action as in sleep-walking; or into coherent ideas and sound-images as in somnambulism.

In somnambulism difficult problems in mathematics with their intricate complexities are solved, and unless what mind was doing were self-cognized, the perceptions would be as heterogeneous as the confused phantasms of a dream in light sleep. This, however, is not true, for there are numerous authenticated instances in which complicated intellection occurred, Euclidian propositions demonstrated, and even literary works of marked genius composed in slumber. It is well known that Voltaire wrote poetry in sleep, that Condorcet saw final steps of difficult calculations, and that in this condition Coleridge composed his fragment, "Kubla Kahn."

Whenever a thought, a feeling or a purpose stirs the human mind consciousness is there, whether in a confused dream or in the deepest stages of natural somnambulism; for while the phantasies of a dream may be only imperfectly recollected, the perception, representation, and perfectly constructed ideas of a somnambulist evince true memory directed by purpose.

Helmholtz proved that a definite measure of time was requisite for the transmission of an excitation by the nervous system, and that only a limited number of sensations could be appreciated by the cerebrum in a given period. In narcosis and somnambulism the contrary is easily made apparent, for longer successions of representations occur than the established physiologic limit of time would permit, logically and conclusively proving that the waking consciousness, with its physiologic measure of time is but one form of self-consciousness. Dr. Carl Du Prel assures us, "what is true of the light of the sun is thus true of the light of sense. As the one in its setting and rising neither produces nor destroys the stars, but occasions their optical appearance and disappearance; in like manner the dream consciousness emerges from or retreats into the unconscious, as the sense-consciousness goes down or rises."

To the dual theory of consciousness so beautifully and logically demonstrated by Du Prel, from whose arguments I have largely quoted, I will add in order to make plain and comprehensive one of nature's fundamental laws, Hudson's theory of the duality of the mind.

One phase of mind with its seat in the upper brain, is by Mr. Hudson called objective; the other located in the lower brain, subjective.

The objective mind from its post of observation in the cerebrum takes cognizance of the sense-world through the media of the five physical senses, is the product of man's needs, is under the control of reason and develops what we know as common sense. In man's battle with the material world the objective mind is his prop and staff, and normally is never controlled against reason by another person's suggestion, reasoning as it does analytically, synthetically, deductively and indeductively, and refusing to accept anything in opposition to achieved results.

The subjective mind, that of the lower brain (pons, medulla and chord), perceives by intuition independently of the physical senses; is the seat of the emotions, of imagination and of memory, and performs its highest functions only when objective consciousness is in abeyance, manifesting itself most potentially in spontaneous somnambulism and artificial hypnotic somnambulism. In this condition many of the most wonderful functions of the subjective or transcendental mind become manifest, such as reading the thoughts of others even to the minutest detail, and perceiving objects without respect to distance.

The most important and characteristic difference between the two minds is that the objective is never controlled against reason by the suggestion of another, while the subjective is unqualifiedly amenable to suggestion, provided the suggestion is not contrary to previously conceived ethical emotions, an assertion that hypnotism has made an established fact.

In hypnosis the subjective mind accepts every suggestion, no matter how absurd or contrary to objective experience except those suggestions opposed to instinct. It controls all the functions of the body, and also the circulation and the vasomotor system.

The ascendency of the transcendental or subjective mind over the objective produces the musician, the poet, the artist in any line, and when "exquisitely balanced" with the objective mind, as Mr. Hudson so beautifully shows us, a Shakespeare.

In proof that duality of mind is shown by both anatomy and physiology I may be permitted the same quotation from Surgeon-General Hammond that I made in a former paper on the same general subject.

Dr. Hammond in a paper entitled "The Brain not the Sole Organ of Mind," relates how he removed the brain of a frog and after waiting for the shock to pass put it in water, when it immediately began to swim. He placed his hand so as to stop it and its efforts ceased; taking away his hand it again commenced to swim. Pflüger removed the entire brain of a frog and applied acetic acid to the thigh over the inner condyle. The animal immediately rubbed the spot with the foot of the same side, making a voluntary movement and showing his appreciation of the locality of the irritation. The foot was then amputated and the acid was again applied, when the frog made an ineffectual effort with the amputated member and failing after a few movements rubbed the irritation with the other foot. This experiment with its demonstration of sensation and volition, is certified to by Prof. Austin Flint, who says he has often successfully produced the same phenomenon.

In certain monsters born without a brain, or with important parts of this organ absent, we have interesting examples of the persistence of instinct. "Syme describes one of these beings which lived for six months. Though very feeble it had the faculty of sucking, and the several functions of the body appeared to be well performed. Its eyes clearly perceived the light, and during the night it cried if the candle was allowed to go out. After death the cranium was opened and there was found to be an entire absence of the cerebrum, the place of which was occupied by a quantity of serous fluid contained in the arachnoid." "Ollivier d'Angers describes a monster of the female sex which lived twenty hours. It cried and could suck and swallow. There was no brain, but the spinal cord and medulla oblongata were well developed." "Saviard relates the particulars of a case in which there was no cerebrum, cerebellum, or any other intracranial ganglion. Yet this being opened and shut its eyes, cried, sucked and even ate broth. It lived four days. Some of these movements were reflex, but others were clearly instinctive and adapted to the preservation of life." "But all these instances as well as experiments referred to as having been performed on lower animals, show that instinct does not reside in the brain."

The duality of consciousness and the duality of mind have now been logically proven, but the practical advantages to be enjoyed depend entirely on discovering a psycho-physical method of inducing the transcendental state.

The science of hypnotism aids and furnishes the clue in this investigation by proving experimentally the existence of a stage of hypnosis short of sleep, in which the subjective emergence is sufficiently emphasized for satisfactory therapeutic work. In this specific biologic condition the objective mind is just sufficiently weakened to lose its normal state of control over the subjective mind; the subject appearing normal, but with an increased susceptibility to impressions through suggestion. All those familiar with hypnotism are aware that by boldly looking a patient in the eyes, and simultaneously suggesting total inability of resistance, he can be made to follow the hypnotist or obediently execute all commands.

A prerequisite factor in successful healing by this psycho-physical process is passivity and faith, a subjective faith, which is only obtainable upon partial or complete cessation of opposition, active and passive, of the waking consciousness. As the transcendental mind is the seat of the cosmic emotions, more than ordinary subjective development on the part of the physician would logically suggest a perfect condition for therapeutic measures, for then the transcendental mind of both would be *en rapport*, and telepathic communication would at once result with relief of pain or the cure of the disease.

Facts in hypnotism demonstrate the complete amenability of the subjective mind to the power of suggestion, making it obvious that any therapeutic suggestion from a physician would prove very efficient if in accord with instinctive auto-suggestion. By analytical reasoning we must infer from this that the subjective condition is essentially restorative, and since normal sleep can be converted into somnambulism, one of the deepest stages of subjectivity, we are again logically forced to admit the similarity of sleep and somnambulism, and that the latter is not due to disease but on the contrary heals directly through deep sleep and suggestion.

Healing the sick in ancient times was supposed to be due to divine aid exerted by means of "prayer, ceremonies, laying on of hands, incantations, amulets, talismans, rings, relics and images, and the knowledge of it was transmitted with the sacred mysteries." Modern science, however, guided by the spirit of truth in the garb of inductive reason, realizes that the lightest or deepest stage of hypnosis is due to a peculiar state of the nervous system induced by certain objective conditions, and like ordinary sleep is dependent upon an absence of sensorial impressions. A knowledge of this lead Brown-Sequard and other neurologists, to show that when one objective or sense-function is used to excess, the others become for the time being inhibited; and that continuous stimulation of one cerebral center would not only result in temporary inhibition of objective cerebration, but would ultimately culminate in a loss of sensorial consciousness and the development of trance or somnambulism.

In sleep the brain is in a state of repose, and as Durham conclusively demonstrates the cerebrum contracts and becomes pale and anemic. This anemia is, however, to be regarded as an accompaniment, and like the vascular state of any active organ, an effect rather than a primary cause.

Paracelsus understood and appreciated the laws of mind, for he said: "Whether the object of your faith be real or false, you will nevertheless obtain the same effects. Thus if I believe in St. Peter's statue as I should have believed in St. Peter himself, I shall obtain the same effects that I should have obtained from St. Peter. But this is superstition. Faith, however, produces miracles, and whether it be true or false faith it will always produce the same wonders." Faith, therefore, is an epitome of the law of suggestion, establishing at once a mono-ideaistic attitude of mind, removing and making impossible auto-suggestion contrary to the result desired. Belief or faith induces passivity through the prevention of antagonistic auto-suggestion, but is not in itself sufficient for the evolvement of the transcendental; for certain psychologic and physiologic processes are involved that necessitate attention with prolonged concentrated effort upon a single point, that inhibitory action may take place through over-stimulation of one sense-function. Thus faith is a potential factor of passivity and mental concentration, indispensable conditions for healing by the laying on of hands, for under these conditions only will the subjective mind rise from below the psycho-physical threshold of consciousness, and stand out boldly in all its manifest power to heal.

Schopenhauer says: "The phenomena under discussion are, at least from the philosophic standpoint, of all facts presented to us by the whole of experience without comparison the most important; it is therefore the duty of every learned man to make himself thoroughly acquainted with them. Then, however, will a time arrive when philosophy, hypnotism and natural science, in the unprecedented progress of all its branches, will throw mutually a light so brilliant upon one another, that truths will be apparent which can only thus be attained."

The great medical association of England and of continental Europe consider the phenomena of hypnotism worthy of close investigation. Every physician should make himself thoroughly familiar with its details, and if after careful and systematic research and experiment he finds it efficient, should employ it in the alleviation of bodily ills.

This can now be done without reproach, for the attitude of the profession is favorable, and the correlative advancement of other sciences precludes the possibility of ascribing supernatural agency to the accomplishment of seemingly miraculous facts.

DISCUSSION.

Dr. John A. Cutter of New York—Some eleven years ago, my mother was seriously sick with pneumonia. I was called in the night to help my father and in the course of our ministrations; he placed one hand on the small of her back and the other over the heart. He said he was endeavoring to confer force on her. There is such a thing as conferring force from one to another. To go into a room in which a patient is slowly dying, from cancer or some other serious chronic disease, and stay in that room but ten minutes questioning the patient and doing whatever is necessary, with me results in a loss of nerve force or whatever you might call it, which I distinctly realize after leaving the patient. There are people who guide and help one and there are othere that irritate and annoy. My father has often said that the secret of success of many physicians of large practice but of very moderate education and scientific knowledge was because of their ability to confer force upon the patient, guide the mind and allow nature a chance to come in and effect a cure.

We might put in as a subdivision of this subject, the conferring of hope on a patient. I know that I have been able to stop pain simply by putting my hand on the place where the pain was. Now, the practical application of this idea is very broad, but I wish especially to call attention to the fact that the professional masseurs do more good by conferring force than by any special method of rubbing, kneeding, rolling or twisting of the muscles on which they lay particular stress. I have questioned patients as to their previous experience with masseurs and have learned from them that if they are manipulated in the morning or when the masseur is not tired, the séance will give the patient relief, but if the manipulation is done at night, after the masseur has had a hard day's work, he will not do the patient any good but is liable to do him harm, taking energy from the patient unto himself, because the patient has said that he has been distinctly tired after the rubbing when before he was fairly rested. Now, as scientific men, we should be willing to investigate all these things. Because we can not weigh or measure nerve force, because we do not know what life is and because we have not the knowledge of the currents of electricity which are probably passing up and down and in and about the body. We must not neglect to learn all we can to give our patients the very best possible.

Dr. **Nathan S. Davis**—It is true that the curing or attempting to cure diseases by the laying on of hands, prayers, charms, and much of what is now included under the term hypnotism, is of very ancient date. Indeed the further we go back in the annals of time the more exclusively do we find all human ailments attributed to good or evil spirits, gods or goddesses, and their cure sought by mental or spiritual influences. And through all the ages, apparently remarkable cures have been, and still are effected by the agencies alluded to. But I think the paper admits that all the diseases cured by such means were purely functional and not involving structural changes. That the mind of man, or the nerve centers though which mind is manifested, exerts a strong influence over the bodily functions both in sickness and in health every intelligent and observing physician will admit. Excite in the mind, confidence, hope and cheerful expectation, and you increase the depth and fulness of respiration, thereby imparting more oxygen to the blood and more efficiency to all the vital functions. Continuing these mental conditions with correct hygienic surroundings will result in the cure of many chronic functional disorders; while the reverse mental conditions will cause them to remain invalids indefinitely nothwithstanding the administration of many drugs.

I think all the phenomena of sleep and those conditions connected with sleep, are much better explained on the supposition that they result from incomplete quiescence of either the sensorium or of some of the nerves of sense, than by any theory of duality of brain and mind. When natural sleep is complete there is no evidence of dreams. But when it is incomplete or the degree of quiescence of the sensorium and of the nerves of sense is unequal, or there co-exists disturbance in some of the excito-motory nerve structures, then we have dreams or some of their allied phenomena. The parts of the brain suggested in the paper as the seat or organ of subjective mental activity and consciousness, i.e., the pons, medulla oblongata and cord have been amply demonstrated both clinically and experimentally to be the primary nerve centers of the vasomotor, respiratory, and other involuntary or excito-motory functions. Those centers are connected by commissures with the cerebral sensorium to which the primary impressions must be conducted to be consciously recognized. If stopped at the primary centers they simply return reflex and excito-motory influences capable of producing many of the phenomena mentioned in the paper; and if we include the numerous excito-motory nerve ganglia or cells on the spinal nerves, and in the cardiac and other internal structures, we can more rationally explain all the phenomena discussed without the assumption of duality of mind or duality of mental brain, than with them.

Dr. **Randall Hunt**—Unless a dual consciousness be admitted we can not hope to explain in a logical and intelligent manner the change in the physiologic measure of time necessary for the transmission of an excitation by the nervous system in the dreaming and waking states. Helmholtz and Fechner have proved this experimentally, consequently any assertion to the contrary has no argumentative value unless sufficient evidence is adduced to invalidate it.

The confused and fantastic content of recollected dreams unquestionably demonstrates only partial inhibition of the cerebral cortex and waking consciousness, but in somnambulism, where complete inhibition occurs. there is no recollection, and if the consciousness of both states was identical, recollection would exist because the subject of consciousness would be the same.

If the psycho-physical stage of somnambulism, dream, hypnotism and waking conscioueness were the same, hypnotism, dream and somnambulism would be only a continuation of waking consciousness, and the remembrance of the material and figure of these states would be identical. The fact of a loss of recollection and difference in representation in the states of hypnotism, somnambulism and dreaming, argues a change of consciousness in these states and the normal waking state.

Recollection is essentially intellectual and cerebral, therefore somnambulism forces us to look for the center of true memory either in the sensory ganglia or pons, medulla and cord, or both.

If it is physiologically and psychologically true that the pons, medulla and cord are only reflex centers, we would be logically forced to admit that the cerebrum in sleep, dream, somnambulism and hypnotism responds automatically to impressions, exciting reflex action when the will is in abeyance or can not be exerted. If this were true the hypnotee would be unable to withstand immoral or criminal suggestion which is, according to Kingsbury, Hudson and Charcot, absolutely contrary to experience and clinical facts.

The eminent physiologist Heidenhain says, "the cause of the phenomena of hypnotism lies in the inhibition of the ganglion cells of the cerebral cortex," and if inhibited they can not act automatically, or otherwise, logically and physiologically suggesting another consciousness with its seat in a different part of the brain.

Prof. Laycock and Gall assert that emotion and instinct can be excited independently of consciousness and of the brain; in fact Dr. Laycock goes further and says, "there are phenomena, however, in favor of the doctrine that the medulla oblongata is the common sensory of all conscious states, whether they refer to corporeal processes or the purely encephalic changes associated with ideas.

Mind manifests itself through its threefold states of intellect, emotion and will, and it is striking to observe how the consensus of opinion among physiologists is that the sensory ganglia, pons and medulla are the seats of the emotions. Whether Brown-Séquard, Noble of Manchester, Prof. Cleland of Glasgow and other great physiologists are correct in stating that the medulla is necessary to the manifestation of mind, I leave the profession to decide.

RECENT PROGRESS IN MENTAL PHYSIOLOGY.

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It is unquestionably true that this century has witnessed greater advances in the knowledge of mental physiology than all the ages that have gone before. The nervous system and especially the cerebrum were, prior to this century, almost a *terra incognita*. We may not know more respecting the properties of mind than our forefathers did, but we understand as they could not the conditions of mental action.

PHRENOLOGY.

The movement inaugurated by Gall and Spurzheim early in this century undoubtedly added a powerful stimulus to the study of mind. The doctrine of localizations in the brain then first was given formal statement. Although the body of teaching comprised under the name of phrenology was erroneous, there was some truth which gave the system the success which it for a time attained. Attention was powerfully directed to the physical correlatives of mind and the so-called mental faculties were analyzed and defined with considerable precision. We now know that there is no such relation between faculty and organ as the phrenologists affirmed, but the modern investigator has been aided in the study of the true doctrine of cerebral localization by the hypotheses and mistakes of his predecessors.

THE EARLY PHYSIOLOGISTS AND THEIR SUCCESSORS.

The work of Bichat, in the first part of the century, was highly advantageous to physiologic inquiry. He first defined the elementary tissues (his classification with some modifications being still in current use), and called attention to the vital properties of the tissues. This conception became fruitful in its application to the nervous system. He was the first to predicate sensibility of all the organs, which, he says, "forms their vital character." In 1811 Sir Charles Bell first demonstrated that there are nerves of sensation and nerves of motion, and he roughly sketched motor and sensory localization in the spinal cord. The way was now open for other researches localizing function and specifying properties in different parts of the nervous system.

The science of biology has sprung into being during this century, and as a result of perfected microscopes, the cellular structure of all organic and vegetable tissues has been revealed. The field of vision has been extended to the domain of the infinitely little. The truly functionating (parenchymatous) elements are groups of cells which, the more we study their marvelous properties, seem the more endowed with the attributes of intelligence. We may fairly compare the behavior of the leucocytes and other living cells of a part invaded by hostile bacteria to the actions of a colony of ants when their citadel is attacked by an enemy; and the true tissue builders of the organism may be likened to the honeycomb fabricators of the hive.

Since the discovery of protoplasm, it has been shown that even the cell is not the fundamental unit, but that the essentially living substance is independent of structure and endowed with the properties of nutrition, growth, reproduction and movements, apparently spontaneous. I shall not discuss the question whether there be any real spontaneity in the movements of the matter of life. Some (as Claude Bernard) insist that the seemingly independent movements of protoplasm are caused by the impact of forces in the environment.[1] On the other hand, Lionel S. Beale in his numerous writings claims the separate existence of a transcendental power, "vitality," as the agency upon which the composition, character, minute structure and action of all tissues and organs in every living organism directly depend. It is not derivable from or correlated with the natural forces, light, heat, electricity, etc. This is dualism pure and simple, a conception from which the scientific world has been steadily moving. It has hampered science in the past, and has been unfruitful of progress. All admit the mystery of life, and it is as great as the mystery of mind.

MIND, ONE ASPECT OF LIFE.

Prior to about the middle of the last century, the most vague ideas of cerebral physiology were entertained. Although the brain was held to be the organ of mind, the latter was not regarded as the function of that organ,[2] consequently the study of mind was not connected with the study of the nervous system.

Hartley, in 1748, made the first attempt to explain psychologic phenomena on physiologic principles. Locke's treatment of the subject is of the vaguest kind, although he had attained to a singularly correct biologic conception of man, whose identity (like that of the plant and animal) consists in "a participation of the same continued life by constantly fleeting particles of matter in succession vitally united to the same organized body."[3] Hartley was the first to speak of motions in the substance of the brain (called also by him "oscillations" and "vibrations") as concomitants of thought. Erasmus Darwin's theory is substantially the same as Hartley's, though he had a dim idea of psychology as based on the laws of life. On this basis Cabanis early in this century instituted his psychology. He first distinctly connected the operations of intelligence and volition with the origin of all vital movements. Life and mind were treated as correlative. The consequences were immediate. If mind was to be studied as one aspect of life, it must be studied through that inductive and experimental method which has reached the certain truths of positive science.[4]

No author has carried forward this conception as far and established it by such a wealth of fact as Herbert Spencer, whose "System of Psychology" has been an epoch-making book, profoundly affecting all subsequent psychologic writings.[5] In the light of the Spencerian philosophy, human psychology is only a part of animal psychology, both dealing with orders of phenomena to be studied under the head of general biology. Mind in the last analysis is resolvable into units of feeling, whose objective counterpart is a nervous shock or series of shocks occurring in the living protoplasm of a nerve center. This conception assimilates human to animal intelligence, and whether best explicable by the monist or dualistic hypothesis, is quite inconsistent with the assumption of any radical difference between the human and the brute mind. If the one needs an immaterial agency to account for its existence, so equally does the other.

In Spencer's system the inorganic comes first, then the lowest forms of vegetable and animal life, then forms of life that have a relatively developed mentality, and finally those that possess it in a high degree, like man.

If the chapter of inorganic evolution could be written, it would trace the development of compounds of matter of the simplest and most stable forms up to those highly complex and unstable compounds containing nitrogen, sulphur and phosphorus constituting the protoplasmic group. The gaps in this study can only partly be filled by a process of reasoning from the law of continuity. There is in the universe a constant redistribution of matter and motion, and these redistributions constitute the changes which we see; nothing new is introduced except what results from the redistributions. There is nothing in the evolved universe which did not exist potentially in the original nebula. The elements and forces which compose an organism existed previously as parts of other compounds. Everything has come into being through one method of evolution from lower forms. How is it with mind—with consciousness? When these first appeared was any new element added?

The consistent evolutionist denies that there has been any supernaturally interjected element. The hypothesis that there is any such element introduces confusion into his system. He may rightly rest in the agnostic position that we can know nothing of the ultimate nature of either mind or matter. He may adopt Spencer's thesis, that the unknowable manifests itself to us subjectively as consciousness and objectively as matter. Doubtless, as Boscovich, Faraday and Jevons believed, matter in the last analysis is simply force, *i. e.*, something immaterial, spiritual. Granting this, monism is the more logical doctrine. Everything has a transcendental side. Mind and matter have a common substratum. In its application to nerve centers, what is nervous shock on one side is feeling on the other. Consciousness is the correlative of the collective life of millions of cortical cells, each having an individuality and mode of feeling of its own. The proposition is incomprehensible, but it is not inherently absurd, as it is in accordance with all biologic fact. In all our mental life, the physical is so inextricably interwoven with the mental that by no analysis can we separate them. The application of this truth to the emotions is familiar to all. "The expression is not merely an external sign of the emotion, it forms an integral part of it. Even in a normal state where an expression is artificially produced, it gives rise to the corresponding emotion."[6] Bain (who was I believe the first to publish a text-book on the mind with an introductory chapter on the brain and nervous system), has shown this with a wealth of detail in his "Emotions and Will." Take, for instance, his description of the physical accompaniments of terror, and conceive, if you can, of this passion existing without those physical expressions.[7]

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[1] Claude Bernard, Leçons sur les phenomènes de la Vie, states: The movements are spontaneous only in appearance. There are always exterior agents foreign to the living organism which provoke active manifestations in living protoplasm. In the higher animals these stimuli generally act through what Bernard calls "the interior environment," *i. e.*, the circulating blood.

De Lannessan, in his remarkable work (little known in this country): "Le Transformisme," defines life as "the sum of movements manifested by matter in that state of chemic composition and molecular aggregation which is the most complex of which we have any knowledge."

[2] The proposition that mind is a function of the brain must be taken with great limitations. See G. H. Lewes, Biographical History of Philosophy, Am. Ed., p. 608.

[3] Essay on the Understanding. New York, 1825, p. 220.

[4] G. H. Lewes: Biographical History of Philosophy, . 604.

[5] Notably Maudsley, Taine, Ribot, Fiske.

It is impossible to present here even a summary of that important part of Mr. Spencer's work in which he traces the correspondence of life and mind throughout the animal kingdom. He affirms that if evolution be true, mind can only be understood by observing how mind is evolved. If creatures of the most elevated kinds have reached those highly integrated and extremely heterogeneous organizations they possess through modifications upon modifications accumulated through an immeasurable past—if the developed nervous systems of such creatures have gained their complex structures and functions little by little; then necessarily the involved forms of consciousness which are the correlatives of those complex structures and functions must have arisen by degrees, as it is impossible to comprehend mental (as well as bodily) organization, without tracing its stages.[8] No one at the present day has done this work so well as Mr. Spencer, and to his "Principles of Psychology" I must refer the reader for further details. He shows that the most general definition which can be given of life—the maintenance of inner actions corresponding with outer actions—also applies to mind, that the degree of both varies as the degree of the correspondence, and that we pass from the physical to the psychical the moment we rise above the correspondences that are few, simple and immediate. "Regarded under every variety of aspect, intelligence is found to consist in the establishment of correspondences between relations in the organism and relations in the environment, and the entire development of intelligence may be formulated as the progress of such correspondences in space, in time, in speciality, in generality and complexity."[9]

Lastly, he shows that the classifications current in our philosophies of the mind can not be true. "Instinct, reason, perception, conception, memory, imagination, will, etc., must be either conventional groupings of correspondences, or divisions among the operations which are instrumental in effecting the correspondences."

THE NEW PHRENOLOGY.

There is no doubt that the doctrine of localization of functions in the cortex cerebri, as based on the discoveries of Fritsch and Hitzig, and especially David Ferrier, has forwarded the progress of mental physiology. The former teaching, sanctioned by the authority of Flourens, was that the functions of all parts of the cortex were essentially the same. The gray matter was inexcitable by ordinary irritants. Mind was regarded as a principle residing in all parts alike, and the destruction of limited areas of gray matter might not seriously impair the mental powers; experiments on rabbits and birds on which ablation of portions of the cerebrum had been performed, were alleged in support of Flourens' doctrine, and the celebrated crow-bar case was made to do yeoman service. "A limited part of the cerebral lobes," says Flourens, "suffices for the exercise of all their functions."

It need hardly be said that such views of cerebral psychology have not at the present day a single scientific advocate, and are virtually abandoned, so that they do not merit formal refutation. I may include in this reprobation the traditional belief that the brain is a mere machine played upon by "the mind."[10]

It was a surprise to the world when the doctrine of motor centers in the cortex cerebri was first enunciated—that a considerable area in the parietal lobes which had been assigned by the early phrenologists to certain faculties of the mind, was a part of the motor mechanism of the body. Broca had found the center of articulate speech in the posterior part of the third left frontal convolution. Ferrier found this center to be a part of the motor zone, which is formed by the juxtaposition of several centers, each presiding over the motion of a member, or of a muscular group on the opposite side of the body.

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[6] Binet and Féré: Animal Magnetism, p. 54.

[7] I can not refrain from citing (though in a note) the illustration given by Prince Kropotkin in the *Nineteenth Century* for July, 1897. The intimate correlation of the psychical and the physical is shown in conformity with the recent discoveries of Ramon y Cajal.

"Suppose that the skin of the right hand is irritated by a burn. The end ramifications of some nerve fibers in the skin at once transmit the irritation inward, to a ganglion cell located near the spinal cord. From it a nerve impulse is sent along another nerve fiber which enters the spinal cord and there envelops with its end branches the dendrons of some neuron. The central nerve system has thus been rendered aware of the irritation of the skin, and in some way or another it will respond to it. The nerve current, after having reached the cell of that spinal cord neuron, immediately issues from it along a nerve fiber; and if that fiber runs toward a striated muscle of, let us say, the other hand, our left hand may touch or scratch the burnt part without consciousness of that action being aroused; it is a simple reflex action. But the nerve fiber of that same cell may divide into two main branches, and while one of them runs to the muscle of the left hand the other branch runs up the spinal cord and reaches one of the big pyramidal cells of the gray cortex of the brain. The ramifications of this branch envelop the dendrons of the brain cell and transmit the impulse to it. Then we become conscious of the sensation in the right hand, and we examine the burn. However, the pyramidal cell in the gray cortex is connected, through its dendrons and fibers, with many other cells of the brain, and all these cells are also started into activity. But the big pyramidal cells, in some way unknown, are the recipients and keepers of formerly received impressions, and as they are stimulated associations of previously impressed images—that is thoughts—are generated. A familiar association between a burn and oil may thus be awakened, and we put some oil on the burn. At the same time the nerve impulse was also imparted to that chain of ganglia (the so-called vaso-motor system), which is connected with the heart, the intestines and all other inner organs, as also with the blood vessels, the glands and the roots of the hair. And if the burn was severe, and very painful, the activity of the heart may resent it, as also the blood vessels; we may turn pale, shed tears, and so on.

Now, whatever hypothesis we may adopt to explain how an undoubtedly physical nerve impulse can be transformed into complicated psychic processes, each of which also ends in physical facts, it can now be affirmed that the paths which the nerve impulse follows, and the activity which it starts in a number of cells of the brain, spinal cord and ganglia, are hypotheses no more. The electric effects of the nerve impulse as it is transmitted along such and such nerves, have been measured; its transmission from this or that cell of the cord to these or those cells of the brain has been tracked step by step; nay, the activity of the stimulated nerve cells in the brain and elsewhere has actually been determined, and the effects of fatigue in nerve cells have been studied in detail. And when the anatomist maintains that an irritation of the skin will be transmitted in this way and not in another, to such cells in such cases, and start into activity such cells of the brain, this is speculation no longer. It is a fact of natural science, firmly established, and verified in different ways by a mass of materially controlled observations."

[8] Principles of Psychology, Vol. 1, p. 292.

[9] Loc. cit., p. 385.

[10] There is a sense in which these views are correct. Munk, in answer to the question, "Where is the seat of intelligence?" replies (and in this answer we see how far the new psychology has diverged from the old): "Intelligence has its seat everywhere in the cerebral cortex and nowhere in particular. It is, in fact, the sum or resultant of all the images or representations derived from the exercise of the senses. Every lesion of the cortex alters the intelligence more or less profoundly, in the ratio of the extent of the lesion. This it always does by the loss of those groups of images or representations, simple or complex, whose seat is the cortical territory injured. The intellectual trouble will be definite: 1. If the perceptive elements are destroyed; 2. If there remains no more substance which can become the seat of the functions lost. Blindness, deafness, psychical paralysis, complete or incomplete, of one part of the body entail greater or less contraction of the field of intelligence." Soury, Fonctions du Cerveau, page 117.

The topography of the motor or cortical centers in man is well demonstrated by the anatomo-clinical study of motor paralysis of cortical origin."[11] These paralyses are extensive or circumscribed according as the lesions of the cortex on which they depend are considerable or inconsiderable in extent, and they affect this or that part of the body according to the precise point in the motor zone in which the lesions are situated.

These are the motor centers (*libero-motor*) of actions properly classed as voluntary and conscious; and even *ideo-motor* actions, originating in the cortex through awakened sensory images, find here their mechanism of reflection.

Here is the highest plane of transit of the sensory into the motor. Here are the centers where impressions not disposed of in the lower ganglia are finally reflected. If life and mind are the adaptation of inner relations to outward changes, here is the workshop where the finer, more delicate adjustments are made which bring the individual into most complete harmony with his environment. For these ganglia are in the closest connection with other ganglia (those of visual and auditory perception, etc.,) in which are registered the experiences of a life time and during the psychic life of the individual they are responsive only to mandates from these higher centers. The infinitely numerous and varied neural communications between ganglia make possible the most complete functional solidarity.

The cells of the motor area (Rolandic region) register motor memories; they are *libero-motor* (Herbert Spencer).

The optic lobes in the lower vertebrates and their intra-cerebral expansions have a functional importance commensurate with their preponderant size, and although in man the corpora quadrigemina are relatively small, the cerebral expansions of the visual nerve apparatus occupy the occipital lobes and a part of the parietal (angular gyrus), in other words these parts of the hemispheres are appropriated to sight memories. Their destruction involves the loss of a wide territory of mind, all knowledge acquired by the visual sense. For it is now known that memory is a material record, "we may in fact assimilate the fixation of memories to an iconographic act, if the complexity of structure of the encephalon did not interpose an obstacle to such a schematization."[12] "To say that the cortex cerebri is a sensitive photographing plate on which are fixed the images of the external world is no longer one of those metaphorical formulæ which are employed to express empirically what can not be scientifically demonstrated."

There is a sense in which the term images as applied to the cortical memories is correct, but it should not be forgotten that we have to do here with vital laws, not physical.

If impressions may be "graven" on the cells of the visual centers, they may be weakened by fatigue or anemia or obliterated by disease, and instances are on record where whole groups of visual memories have been blotted out by softening while the memories of other senses are left intact. The condition of the subject is truly deplorable, for he can no longer recognize objects, and all that he has learned by sight has perished. The distinction of partial memories, so much insisted upon by Ribot has been established beyond dispute. Charcot has devoted to this subject an interesting lecture in the third volume of his Lectures on the Diseases of the Nervous System (Leçon xiii). He gives the particulars of a case of loss of the mental vision of objects, forms and colors, coming on suddenly in a subject noted for great intellectual activity, but especially for the strength of his visual memory. After an attack, which seemed to be of the nature of a limited embolism, he lost his visual memory of forms and colors, and was obliged to have recourse to other forms of memory (the auditory, tactual, etc.) which were unimpaired. The "interior vision had completely disappeared." Charcot concludes his observations of this case by saying that, "It can not now be denied that the possible and actual suppression in numerous instances of an entire group of memories, of a whole category of commemorative images without the participation of other groups or categories is a capital fact in pathology as well as in cerebral physiology. It leads necessarily to the admission that these divers groups of memories have their seat in certain determinate regions of the encephalon, and adds another proof to those already existing that the hemispheres of the cerebrum consist of a certain number of differentiated organs of which each possesses its proper function while remaining in the most intimate connection with the others."

The visual word center whose suppression gives rise to word blindness is in the angular gyrus. Lesion of this center is generally accompanied by hemiopia by involvement of the common visual center situated in its vicinity. Dejerine, who locates word blindness in the angular gyrus, thinks that lesion of this center always connects with it agraphia, writing being but the copy of visual word images evoked mentally,[13] (See in opposition to this exclusive view Bastian in London *Lancet*, April 10, 1897, page 1012.)

The auditory word center whose destruction causes psychical word deafness is seated in the middle part of the first left temporal convolution.

Ferrier, Wernicke and Munk agree in localizing the center of audition in the temporal lobe, particularly in its upper portion; the first and second temporal gyri. This is the seat of sound perception, destruction of which entails loss of the memory, and consequently of the comprehension of words. There are now quite a number of cases on record in which the loss of word memories was consequent on softening of this center. Many cases have been recorded in which the patient's speech has been so disordered that he could scarcely say more than three or four connective words, and could perhaps utter no nouns, yet when a book is placed before him, he is capable of reading aloud correctly and with ordinary facility.[14]

Regarding the centers of smell and taste, it seems demonstrated that these are located in the sabiculum cornu ammonis, and in the hippocampus. We, however, lack positive data in this regard. It is also in the hippocampus that Ferrier locates the centers of tactile sensibility, but we require more definite knowledge on this point. There is good reason to believe that in man the motor areas of the cortex contain also the centers of cutaneous sensation.[15] The frontal lobes undoubtedly make part of the sensitive or sensori-motor sphere of the cortex cerebri. They are, according to Ferrier, inhibitory motor. Electric stimulation causes no motor manifestations; their removal produces no motor paralysis, but causes a form of mental degradation which may be reduced in ultimate analysis to loss of the faculty of attention (Ferrier, Functions of the Brain, page 288).

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[11] Vide Charcot: Centres Moteurs Cortieaux, p. 193. Paris, 1875.

[12] Bressaud: Traité de Médecine, Charcot, etc., Paris, 1895, p. 6.

[13] See "Illustrative Cases of Aphasia," by Byrom Bramwell, Case 1, p. 796, in Lancet for March 20, 1897. He reports a case of agraphia with almost complete word blindness due to a gumma in the region of the left angular gyrus. This writer does not, however, admit that all cases of word blindness are accompanied with agraphia.

[14] Bastian, in London Lancet, April 10, 1897, gives notes of three such typical instances.

Removal of these lobes also produces a peculiar change of character; animals become morose, irritable and violent, and similar changes of importance have been noted in them after serious injuries of these lobes. Removal of the occipital lobes seems more directly to enfeeble the intelligence, because, as Soury shows, the posterior cerebra have more to do with sensibilty, and in the event of their mutilation, "the impossibility of inhibiting the centripetal irritations and of determining muscular movements co-ordinated in view of a useful end will give to the animal the aspect of a creature becoming demented.[16] The anterior cerebra have a more strict anatomic relation with the motor apparatus; the posterior with the organs of sense. As long as these two cerebral regions are intact, the centrifugal currents of the muscular innervation may undergo an arrest, as well as the centripetal currents coming from the organs of sense. The cerebral reflexes enter in play, and the final reaction positive or negative, always results from the conflict of the psychic forces. But in the animal whose front brain has been removed, there is no longer anything to oppose the liberated currents of motor energy.[17]

"Man," says Ferrier, "is not merely a passive or receptive organism capable of registering impressions in the form of sensory ideas or feelings, but also an active or executive organism, possessing the power of varied and complex forms of motor activity. These motor activities called into play by definite feelings or sensations, actual or revived, constitute volitional movements, and the organic cohesion formed between the sensory and motor centers persistently enduring in these centers is the physical basis of our volitional acquisitions in all their manifold range and complexity."[18]

In accordance with these views, we can only regard intelligence as the resultant of all the images or representations derived from the perception of the senses. Every lesion of the cortex alters the intelligence, the more profoundly the greater the extent of the lesion; this it effects by the loss of these groups of images or representations, simple or complex, which have for their substratum the cortical territory diseased or destroyed.[19]

The familiar truth, *Nihil est in intellectu quod non prius fuerat in sensu* (there is nothing in intellect which was not previously in sense), has received striking confirmation from recent discoveries in mental physiology. What clear notion is it possible to form of mind apart from these stores of images that have come in through the special senses? Reflection, imagination, ideation, discrimination are only possible as these images are awakened and brought into simultaneous intercommunication through that wonderful network of neural connections which exist throughout the cerebrum. But many of these organized acquisitions antedate the experience of the individual, and are a product of ancestral experience.

The human brain may be regarded "as an organized register of infinitely numerous experiences received during the evolution of life, or rather during the evolution of that series of organisms through which the human organism has been reached."[20]

The physiologist of today is perhaps as far as his predecessors from a solution of the problem of consciousness. Consciousness is doubtless a primordial fact of ganglionic nerve activity under certain conditions. These conditions are now tolerably well known. It is not an activity that can long be sustained without interruption. It seems particularly to be associated with the disintegration of nerve element. Some writers, notably Herzen, regard it as the fervid glow of the sensorial centers. The illustration will answer our purpose, the qualification being made that we are regarding only the objective aspect of the subject. In this fervor all the elements of the cortex participate with a greater or less degree of intensity, by reason of that cohesion of neural groupings which constitute a solidarity of the brain functions.[21]

1. "Impressions are resuscitated or brought into consciousness in proportion to the amount of molecular change in the brain" (E. D. Cope). This statement is in conformity with Herzen's investigations (See "Le Cerveau et l'Activité Cérébrale," Part III.)

2. Events are resuscitated in proportion to the intensity with which they are impressed on our consciousness at the moment when they occur. This is a universal experience, and according to Cope is to be traced to the different degrees of molecular changes produced in the brain by the respective impressions. Cope, from whom I quote, gives appropriate illustrations. The facts of inherited memory are; that upon the appropriate stimulus being presented, as the cry of a hawk, a part of the impression made on previous generations of chickens, *fear*, is resuscitated in consequence of inherited peculiarity. The phenomenon is precisely that which occurs in the life of every single animal. Reminiscence is the bringing of mental states into consciousness.

3. Consciousness is dependent on a certain normal waking state of the cerebrum and integrity of the cerebral substance.

4. Consciousness is not coextensive with mind. The contrary was taught as a psychologic dictum by Sir William Hamilton, but it is not correct, nor is it altogether true to speak of mental phenomena gener-

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[15] See a paper by Dr. Charles L. Dana, in the Journal of Nervous and Mental Diseases, October, 1885, in which this subject is discussed from recent data.

[16] Soury: Les Fonctions du Cerveau, Paris, 1892, p. 136.

[17] Loeb, cited by Soury.

[18] Functions of the Brain, p. 266.

[19] Munk (cited by Soury).

[20] Herbert Spencer, loc. cit., p. 471. "Les perfectionnements ainsi obtenus dans une suite de générations finissent par devenir héréditaires et par faire partie des qualités de la race. Que de sentiments naturels aujourd'hui chez l'homme civilisé ne sont que des resultats d'une éducation continuée de générations en générations pendant de longs siècles." Vulpian, Physiologie Comp. du Système Nerveux. The French physiologist has here brought out the same truth as is advanced above.

[21] The following passage is from Herzen, "Le Cerveau et l'Activité Cérébrale." Paris, 1887:

"We are conscious in the waking state, unconscious when we sleep soundly; this is a first rough indication of the bond which unites consciousness to the disorganization of the active elements. I shall show further on that this intermittence subsists in each central act taken separately. The brain may, in fact, be compared to a room furnished with an immense number of gas-beaks, but lighted only by a number relatively small and relatively constant of illuminated beaks, which are not always the same; on the contrary they change at each instant; as fast as one is extinguished others are lighted up; all are never illuminated at the same time; at times all are extinguished."

ally as "states of consciousness." Mental power, as Maudsley well says, is organized before consciousness appears, and it is subsequently regularly modified as a natural process without the intervention of consciousness.[22] Maudsley elaborated this fact with considerable completeness many years before the valuable contributions of F. W. H. Myers and Dr. Osgood Mason on the "Subliminal Consciousness" were published. Dr. Carpenter forcibly states the same truth in her "Principles of Mental Physiology," published in 1874. The subject has also been well treated by Dr. Laycock and by Dr. Oliver Wendell Holmes.

5. The process of association of ideas goes on in the brain independent of consciousness and the assimilation or blending of similar or different ideas is in no way under the cognizance or control of consciousness.[23]

If consciousness is the highest form of cerebral activity, embodying primarily present impressions of sense, and secondarily the residua of past impressions (the results of individual and even racial experiences) with the feelings and emotions belonging to those experiences, it follows that the character and personality of the individual can not find expression without consciousness; in other words, the individual when under the domination of subconscious or unconscious states is an automaton rather than a rational man. This truth has been recognized in all ages; a man is only responsible for what he does consciously.

Doubtless trains of thought can go on without consciousness; we have evidence of this in our dreams, and in hypnotism. It is possible for subconscious states or groups of ides to become "dislocated" and form a second personality. We find remarkable instances of this kind recorded in "Maladies de la Personnalité" by Ribot, and in Janet's "Automatisme Psychologique," and later works which deserve careful study. Hypnotism artificially arouses in the subject a second personality by paralyzing or inhibiting in some mysterious manner the upper consciousness.

I am aware that extraordinary claims have been made for hypnotism, but really nothing has ever been elicited from hypnotized subjects that was not before in their cerebra as parts of their stored-up acquisitions obtained through the channels of the senses. Again we say: *Nihil in intellectu quod non prius fuerat in sensu.* The most that we can concede is that in some phenomenal cases there may have been a preternatural exaltation of certain senses so that the subject became in some way cognizant of influences at a distance.

As for "mind reading," I have no explanation to offer; I await sure proof that the fact exists. The stores of "memory images" in the cortex cerebri are not legible characters nor even hieroglyphics to be read by experts, but simply cell modifications, with their subjective counterparts.

We should be slow to adopt the conclusions of Myers, who has written profoundly of the "Subliminal Consciousness," in the Proceedings of the Society for Psychical Research. A vast amount of assertion is made on insufficient authority. Myers' conclusions may be in harmony with the old psychology; they can not be reconciled with the new. If the views of some of these men of the Psychical Research Society are true, we must give up doctrines which are the necessary resultant of the inductive study of mind of the past hundred years. If Mr. Myers is right, we have learned nothing from the method of concomitant variations or the clinico-pathologic method based on the modern doctrine of cerebral localizations. This is no reason why we should reject proved facts, but it is important that we should weigh assertions and demand the most complete proof.

Dr. R. Osgood Mason has lately published a book entitled, "Telepathy and the Subliminal Self," which contains much that is simply as incredible as the prodigies which Suetonius describes attending the death of Julius Cæsar, and is not better supported. The order of phenomena of which he writes is quite familiar to us through the claims of spiritualists, who base their beliefs on just such "facts." Modern spiritualism has been very thoroughly investigated and found wanting. I need only refer to the labors of the Seybert Commission and to the English Society for Psychical Research, which has done good work in exposing frauds posing as mediums and clairvoyants. The mediums of this country are almost without exception shallow impostors and charlatans banded together to help one another and to deceive the public. Prof. R. Hodgson virtually affirms this as the result of his labors in the United States in behalf of the Society for Psychical Research.[24]

I am certain that the psychology of the future will not accord as much importance to the "subliminal consciousness" as does Dr. Mason. To him it is an unknown quantity of monstrous proportions, capable of all knowledge, past, present and future. Rather would we take the view of Janet, that it is the weaker self. "How far this splitting up of the mind into separate consciousnesses may exist in each one of us is a problem. M. Janet holds that it is only possible where there is abnormal weakness and consequently a defect of unifying or co-ordinating power. A hysteric woman abandons part of her consciousness because she is too weak nervously to hold it together. The abandoned part meanwhile may solidify into a secondary or subconscious self. In a perfectly sound subject, on the other hand, what is dropped out of mind at one moment keeps coming back at the next. The whole fund of experience and knowledge remains integrated and no split off portions of it can get organized stably enough to form subordinate selves."

This view of the pathogeny of the "second personality" I have given in the exact words of Professor James.[25] It is the view becoming more and more current among physiologists. The individual who is subject to these changing phases of personality, or who can assume them at will for purposes of gain, professing to be under spirit control is, like the hysteric or insane person (there are some forms of insanity in which the mental malady is a simple change of personality), a person of weak and depraved cerebral tone and stamina, a neurasthenic or a degenerate. It is folly to attribute to such weak-minded, depraved or degenerate subjects superior knowledge and insight and consult them on matters of the utmost moment, as is done by many. Science has in the past throttled superstition and will continue its beneficent mission. Spiritualism is based on old and obsolete views and must perish as men learn the new science of mind.

Let us defeat the Antivivisection Bill!

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[22] Maudsley, Phys. and Path. of Mind, Am. ed., page 15

[23] Maudsley, loc. cit.

[24] See "Vampires of Onset," by John Curtis of Boston, for further proof. Mr. Curtis writes: "Nothing has come from spiritual or psychical societies of the least value to the world and all interest in them is fast dying out.

[25] Psychology, vol. 1, p. 210.

A COMPARISON OF THE ANATOMY AND THE FUNCTIONS OF THE CEREBRUM AND THE CEREBELLUM.

Presented to the Section on Physiology and Dietetics, at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

BY WILLIAM FULLER, M.D.
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In order to understand the anatomy and the connections of the cerebrum and the cerebellum, it will be necessary to present a cursory view of the general structure of the central nervous system. For the purpose of description it will be advantageous to divide the cerebro-spinal axis into three portions, which may be compared with each other by similarity of parts, though differing in their arrangement. The three divisions of the axis which I shall make are, the spinal cord, the cerebellum and the cerebrum. Each of these parts is divided into lateral halves by a median fissure. The lateral halves are united in the median line by a commissure; each portion encloses a cavity or ventricle which is continuous with that of the others, and each is composed of gray matter, of motor and sensory function, with commissures of white matter extending between the gray masses, or the nerve centers. The gray matter of the spinal cord is invested by the white columns of the cord, while in the cerebellum and cerebrum the gray matter or ganglia are everted, and the white substance enclosed. The crescent-shaped gray columns of the spinal cord are its inverted hemispheric ganglia, and the reticulated column by which these are immediately invested, corresponds to the corona radiata of the cerebellum and the cerebrum. The longitudinal white columns of the spinal cord are seven in number, are continuous with certain tracts of the cerebellum and the cerebrum, and may therefore be traced upward into these parts, and associated into general systems, by which method of study an understanding of the whole structure will be reduced to the greatest simplicity. Disregarding the direction in which the nerve impulses are propagated, we will begin in each instance with a column of the spinal cord and proceed upward, in order to avoid confusion in the anatomic relations. We will make use of the singular number in most cases, since it will be understood that each half of the axis is like the other.

1. The motor tract: The crossed pyramidal tract unites with the direct pyramidal tract of the opposite side of the cord to form the opposite pyramid of the medulla oblongata. The anterior pyramid of the medulla passes into the pons Varolii, is there connected with one side of the ganglion of the pons, which is the external basal ganglion of the lobe of the cerebellum opposite to that half of the pons. The pyramid is continued through the crusta of the crus cerebri and the middle portion of the internal capsule and lenticular body, to the motor area of the hemisphere. The impulses propagated along this tract are downward, and are derived from the hemisphere of the cerebrum, and the opposite hemisphere of the cerebellum.

2. The ocular reflex tract begins below in the fundamental root zone of the spinal cord and, becoming compressed at the upper part of the medulla oblongata between the anterior pyramid, the olive and raphe, escapes in the pons Varolii to form a flat band in front of the fillet and, pursuing an upward and outward direction to the corpora quadrigemina, is continued through the brachia and the geniculate bodies to its connection with the optic tract.

3. The fillet tract or the sensory tract of Gower. This tract commences below in the anterior root zone of the spinal cord, passes upward to the pons Varolii, where it lies behind the olivary fasciculus, and forms the middle layer of the fillet with which it is continued upward internal to the crusta, which it crosses in an oblique direction to reach the frontal convolutions of the cerebrum. This tract is augmented in size as it passes upward by accessions from all the sensory ganglia and, with the large mass of fibers derived from the thalamus, this system forms the anterior portion of the internal capsule of the cerebrum. The probable function of this tract is to form a direct communication between all the sensory ganglia with the seat of consciousness and intellect in the anterior lobes of the brain.

4. The cerebello-spinal tract: The direct cerebellar tract of the spinal cord connects the cerebellum with the vesicular column of Clarke. The function is supposed to be trophic.

5. The organic sensory tract: Beginning in the posterior root zone of the spinal cord, it is interrupted in the medulla oblongata by the restiform ganglion, is continued upward to the cerebellum by the restiform body entering the corpus dentatum, or internal basal ganglion of the cerebellum, and to the cerebrum through the processus, red nucleus and thalamus to the occipital and temporal lobes of the hemisphere, which is the seat of the memories. It is probable that the impressions received by this tract are co-ordinated by the cerebellum, and organized into memories in the cerebrum. The region of the memories in the cerebrum is associated with the fillet system and the frontal lobes by means of the great longitudinal commissures, the import of which is, that the present impressions received through the fillet system of fibers just mentioned are thus associated in the intellect with the organized impressions of the past which, as I have before stated, are located in the posterior and temporal lobes of the brain.

6. The respiratory reflex tract is formed by the posterior median columns of the spinal cord which, terminating above in the clavate nuclei, are through these bodies connected with the centers of the sensory respiratory nerves.

If we add the speech tract to those above described, it will be observed that we have included almost the entire cerebro-spinal axis into four short and into three general groups or tracts. For our present purpose we may omit the former groups, and regard only the latter, viz., the motor tract, the fillet or direct sensory tract and the organic sensory tract. The cerebrum is connected with all three of the latter tracts but the cerebellum is not associated with the fillet, being devoid of consciousness and intellect, but with the other two tracts only, viz., the motor and the organic tracts. The parts which enter into the structure of the cerebrum, or into the cerebellum, are the internal capsule and basal ganglia, the transverse commissures, the corona radiata and the hemispheric ganglia, a comparison of which several parts will now engage our attention.

The internal capsule of the cerebrum is composed of three distinct parts: an anterior portion which is distributed along with the longitudinal commissures to the frontal lobes of the hemisphere, and is receptive in function; a middle portion, derived from the parietal or motor area, and is motor in function; and a posterior and inferior portion, derived from the internal basal ganglia and distributed to the occipital and temporal regions of the hemisphere, the function of which is sensorial and organic, and which therefore contains the memories. The internal capsule of the cerebellum also contains three parts, viz., the restiform body, which connects it with the spinal centers; the processus, which connects it with the opposite cerebral hemisphere; and the deep layer of the transverse fibers of the pons Varolii, which connects it with the ganglion of the opposite side of the pons Varolii and the opposite motor tract of the cerebrum. The latter portion of the cerebellar internal capsule is its motor tract, which therefore decussates with its fellow in the middle line of the pons Varolii, in order to reach the motor tracts of the cerebrum previous to the decussation of the latter in the medulla oblongata, which supposition appears to be amply demonstrated in a hemimicrocephalic specimen in my possession, as well as from the consideration of the physiologic probability.

The restiform body and the processus both belong to the organic sensory tract and are continuations of the same. The internal basal ganglia of the cerebrum are sensory, and the external basal ganglion, or lenticular body, is motor in function, and each is connected respectively with the sensory and the motor tracts before described; their names indicate their relation to the internal capsule. So likewise the basal ganglia of the cerebellum are called internal and external, and are correspondingly sensory and motor in function. Its internal basal ganglion is the corpus dentatum, in which the restiform body terminates and the processus takes its origin. The external basal ganglion of the cerebellum, as before stated, is within the opposite half of the pons Varolii, being thus displaced to be associated with the opposite motor tract of the cerebrum, with which its function is allied. The corpus callosum of the cerebrum is a broad band of transverse fibers which unites its opposite hemispheres, and its analogue in the cerebellum is the superficial layer of the transverse fibers of the pons Varolii. The correspondence between the corona radiata and of the hemispheric ganglia of the cerebrum with the same structures of the cerebellum are sufficiently evident that they only require to be mentioned.

The size of the cerebellum relative to that of the cerebrum in different brains is worthy of note in reference to the effect upon the character of the individual. A large cerebellum is associated with a large development of the nutritive functions, and commonly with the existence of great force of character. Men thus endowed occupy the first place in the public estimation, while those of intellect occupy the subordinate position of advisers. The intense desires originating in a large cerebellum are not obstructed by the contracted foresight of a small cerebrum, and on the other hand a large cerebrum often magnifies the difficulties which lie in the path that leads to success. The man who is well balanced by a due proportion of these masses is happily constructed.

The above observation is supported by a comparison of several brains in my possession of persons with whom I was well acquainted in their lifetime, and I think that common observation will lead any one to the conclusion that a large abdomen is a stronger indication of greatness than a great head.

This leads to a consideration of the relative functions of these portions of the brain. We have observed that the cerebrum is built upon those tracts of sensation one of which furnishes it with material for direct perception, and the other organizes within its cells not only the impressions of past experiences, but perhaps also the inherited tendencies of a former generation. These are associated by means of the longitudinal commissures of the brain and the conscious judgments, ever varying with each successive stimulus, are reflected upon the motor tract in obedience to the mandates of the will. The activities of the cerebrum are those which produce sudden and active change of the organs of motion, in order to accommodate the individual to his environment. The activities manifested as the result of cerebral disease are those of mental disturbance, chorea, athetosis, etc. The lateral masses of the cerebellum are connected wholly with the organic sensory tracts and with the motor tracts of the opposite cerebral hemispheres. Each hemisphere of the cerebellum is directly attached to the same side of the spinal cord and receives impressions from the same side of the body to which it belongs; its motor tract crosses over in the pons Varolii, but is returned to the same side of the cord at the decussation of the pyramids of the medulla, in which the arrangement of the cerebellum differs from that of the cerebrum. It is a mystery which surpasses my capability of solution, why the tracts leading to the cerebrum are crossed. My present impression is that it is the function of the cerebellum to co-ordinate the nutritive functions of the body, and as the mental states of feeling, indicated by desires and passions, depend largely upon conditions of the organic nutrition, it is therefore very probable that the immediate support of the feelings of the mind rests upon conditions within this organ. This is the opinion of Laycock, who thinks that the cerebellum is virtually a great sympathetic center, and thus sustains about the same relation to the sympathetic system as the cerebrum does to the cerebro-spinal system, which I am inclined to accept. The movements produced by the cerebellum, if this theory is true, correspond to changes of organic nutrition and must necessarily be slow, and are manifested externally by attitude and such expression as one can read upon the countenance of an individual in a state of rest. To sum up in a general comparison, I should say that the cerebrum is the brain which represents a knowledge of the world, while the cerebellum represents the physical condition of the man.

It is not to be expected that I should give a complete exposition of the anatomy of the brain in the short time allotted to the reading of a paper, but I have seized upon this opportunity to express what I believe to be the only proper and useful method of studying the central nervous system. The study of the anatomy of the central nervous system should be prior to the investigation of function, for without the aid of anatomy all attempts toward the determination of function, of localization and diagnosis are futile.

Oblique Incision in Sectio Cæsarea.—Fritsch finds that there are many advantages in favor of an oblique incision of the fundus, parallel with the vessels. He recently practiced it and found the entire operation only required twenty-nine minutes; the fetus was extracted with ease; the hemorrhage was very slight and stopped after the removal of the placental sinus, without compression of the cervix. The abdominal incision can be made higher up, thus avoiding danger of hernia later. The operation was remarkably clean. No blood entered the abdominal cavity.—*Cbl. f. Gyn.*, No. 20, 1897.

THE PHYSIOLOGY OF RIGHT- AND LEFT-HANDEDNESS.

Presented to the Section on Physiology and Dietetics at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

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Much as this subject has been discussed, it does not seem to have been approached from the right point of view.

The young infant is in evidence, whose manifestations and peculiarities have been entirely overlooked. First, there is no asymmetry of body or function in early infancy. The child uses its two arms, legs and hands equally well. If there is any heredity of one-sidedness, it does not appear. The first day of life one thing is especially manifest. Beyond all other parts of the body, the hands show greatest development in function. Flexion and extension of fingers, hands and arms are wonderfully perfect and truly bilateral. The first day of infant life the grasping power of the hands is extraordinary. If permitted to clasp a pole with both hands it does so with firmness and will easily sustain its entire weight for a prolonged period. All other parts of the body show comparative weakness and uncertainty of function. This indicates that the hands are developed early, so that the child may become acquainted with its surroundings. The extraordinary clasping power of the hands has amused even the evolution philosophers, who have presumed to declare it a reminiscence of bestial prehensility of claw or tail. However, it is a distinctly human trait. The hands are alert and well developed to feel their way into the world. The sense of touch comes first. Our hands are the first teachers of the properties of things, of roughness and smoothness, of heat and cold, of distances. All these as results of sensation are recorded in the brain through what we call sensory nerves. These nerves or conductors pass up from both sides to the posterior columns of the cord and through the medulla oblongata to each brain.

In the medulla oblongata a peculiarity of organization appears. The nerves from the right side pass, in greatest bulk (about 90 per cent.) to the left cerebrum. From the left side of the body 90 per cent. pass to the right cerebrum, while a small portion (about 10 per cent.) pass straight or uncrossed to the cerebrum of their own side. Thus each half brain is functioned to control both sides of the body, but with great preponderance the left cerebrum controls the right side of the body and the right cerebrum the left. If both sides of the body were used exactly alike the two brains would receive equal or uniform records of sensation. The same is true of the motor or efferent nerves. These also cross in the medulla oblongata from the left to the right side of the body and from the right to the left side in a similar disproportion. If each side of the body, through the hands, was trained exactly alike, the same records or memories of sensation and movement would be printed on the cerebral cortex of each brain. The two brains would become as ambidextrous as are the two eyes, which have an exactly similar crossing of nerve fibers in the optic commissure, whereby the eyes either together or singly carry to the sensorium the same impressions. It needs but little argument to show that were the two eyes separated from each other for the first few years of life, the habit of one-eyedness would become established, and they would never learn to act coincidently.

"Custom alone can overcome nature," says Bacon Have we not reason to suppose that nature, as evidenced in the anatomy of the body and the nervous system, may be defeated by a convention or custom established and persisted in from the infancy of the race? There is no animal, mammal at least, which is not perfectly ambidextrous. At least I can find no evidence of one-sidedness, save in man. This habit seems to have been established in early ages, probably before the historical period. The first occupation and duty among men was to fight and kill each other, for which purpose they desired one stronger hand to wield the club, spear and sword, while the left hand was relegated to carry a shield, and by custom, superstition and fancy it has persisted ever since. It is the exceptional parent, to this day, that neglects to train the child to right-handedness. Perhaps no mother or conventional nurse ever fails to place an object for the infant to clasp save in its right hand. That right-handedness is not natural, however, is evidenced by the oft-repeated left-handedness observed among us.

The left-handed habit is doubtless started in spite of the watchfulness of the parent during the critical period of babyhood, after the seventh month, perhaps on account of a burn, a strain or hurt of the right hand. The child at once brings the left hand into use, and in a few days, weeks or months the left hand habit becomes established with such force as to discourage the parent. All efforts weakly persisted in fail to correct it.

In the most primitive condition of man, before the custom of warring with each other existed, man as a hunter did not use the sword and shield. Perhaps then the two hands were brought equally into play. One or two authors have contended that early man was more ambidextrous than we; however, it seems impossible to confirm this. Among the early Hebrews the soldiers of the tribe of Benjamin were trained to left-handedness and the ancient Jewish script was from right to left. However, right-handedness has been in vogue through all the historic period. Left-handedness was in language equivalent to awkwardness—to the wrong as opposed to right (*droit*). The left was the weak, evil or sinister side. Men spoke of the "bar-sinister" "born on the left side of the blanket." It was the unlucky side, and the superstition of man became an early sponsor of qualities attributed to the left side. The ancient augurs observed as unfavorable the flight of birds to the left.

The importance of ambidexterity may be readily concurred in the increased capacity for labor obtained thereby, to the respite afforded to one hand by the use of the other, and the instant substitution of one hand for the other in case of injury to or loss of its fellow. I have known many cases of partial ambidexterity among mechanics and others, who could use either hand to saw and cut with, or draw a nail. Such were always proud of the accomplishment and realized its great advantage.

I have never seen but one case of complete ambidexterity. This was the late Alexander Mott, M.D., of New York, who used either hand in writing and the most delicate dissecting, in which his skill was marvelous. He told me he was always ambidextrous; that his father (the celebrated Valentine Mott) said, "My boy must succeed me in practice and I shall see to it that he has two good hands instead of one, like his father." This case shows the practicability of effecting perfect ambidexterity by careful training.

Over a century ago Dr. Franklin wrote a short article for the French encyclopedia in which he personified the left hand as the neglected member and remonstrated against the absurdity of the conventional one-sided body.

Seventeen years ago Brown-Séquard came to this country and delivered his lecture on the "Dual Brain" in Washington, Philadelphia and Boston, in which he warmly urged the training of children to ambidexterity, in view of the reaction of one-sided body training in limiting the development of proper brain functions. Nevertheless his sensible views, presented in the zenith of his fame and influence, fell still-born before the medical world, contrasting sharply with the favor his theory of internal feeding has received from the same public.

The key to the whole question of one-sidedness of body is the establishment of habit. The nervous system converts the whole body into a unit, knitting together the most distant parts.

The nerves are conductors to and from the brain-pathways of the great currents of life. Habit is defined as the tendency of a given act to repeat itself in the realm of animal life. Habits are, from comparison, called ruts, like the channels which water wears in descending from a height. They become deeper and deeper as the current continues and soon become too deep for the possibility of another channel being formed. Certain nerves to and from a group of muscles control them, at first unequally, but after a while the muscles are compelled to act in unison. At last in the effort of adjusting to harmonious action a muscular movement, at first clumsy and slow, becomes almost automatic; each detail of the movement becomes as it were obliterated. We can not say each nerve conductor does not act separately though we do say the action is instantaneous. However, we recognize with very delicate instruments that the time element does enter. A certain moiety of duration occurs in all rapid conjoined movements, yet we know also they are not strictly automatic, for if one or more of the nerves of a group of muscles be cut between the group and the brain, the action is destroyed as surely as though a wire be cut in a complex system of telegraphy. Beginning with the first action habit becomes more confirmed with each successive act, also easier and more rapid. The effect of habit is especially seen in the successive and simultaneous action of voluntary muscles which are united, as in writing. In these muscular associations if an impulse is started it runs, perhaps, through a long list of words without fresh impulse. The adroitness of handling the pen in continued motion is a matter of education and habit. The musician affords a striking example of the development of the finger movement.

The many paired muscles and nerves of vocalization are so much under the control of the association habit, that were it not for this, no one could ever learn to speak. The power of habit is seen in the association of ideas. We speak of habits of drunkenness, swearing, lying and every modification of speech a thought; habits of industry, order, idleness, vanity, cheerfulness, melancholy; we are called bundles of habits. Habits, also, instead of increasing sensation often lessen it. We habitually come to disregard, after a while, our clothes as well as sounds, though at first conscious of them every instant. Thus habitual motions become changed from volitional to so-called secondary automatic actions as in walking and speaking.

The action of the vocal muscles is preceded by sensation, idea and volition, but after a while it becomes purely sensational or ideagenous—easy and as it were automatic. Habit, first the offspring of volition, seems to become its successor The force of habit thus compares with instinct, and education vies with intuition when habit becomes second nature.

Habits once acquired are not easily discontinued. They are grooves in which the mind is accustomed to move. The great importance of habit is perceived to be economy of time. Through rapidity of muscular action a complete unity of our complex animal organization is effected. To form ruts or habits in the nervous system becomes the potent cause of one-sided action of body and brain. This is seen in the great right and left side deftnesses which become permanent and assume an undue importance in our economy. It is sometimes the left side but nearly always the right. It might as well be both sides.

Besides Dr. Mott, it is said that Dr. Pancoast of Philadelphia, was nearly if not quite an ambidexter; also, Prof. Morse the inventor of the electric telegraph machine.

It is difficult to find in history many examples of ambidexterity. Homer's Iliad describes one of his warriors as throwing a spear with either hand, also some of David's men-at-arms could use both hands. Leonardo da Vinci and Michael Angelo are known to have been perfect ambidexters. Leonardo Da Vinci was not only a distinguished sculptor and painter but a great inventor, machinist, architect and engineer. It is said that after his seventy-sixth year, while working on an order of Francis the First, he was struck with right-sided hemiplegia; he however, continued his work with his left hand and right brain, which was doubtless, from training, equal to the other in functions. Michael Angelo was a man of great intellect and physical energy and lived to great age. It is remarkable that these two eminent men are placed by our Italian statistical and science-gossip Lombroso on account of this feature among his "molloids" or degenerates, who happen to share in the manual dexterity of pickpockets. The latter from neglected training or from obvious professional reasons furnish 1 or 2 per cent. more cases of left-handedness or perhaps partial ambidexterity than are found in the normal population.

We believe the crossed fibers to either brain is a real switching-off apparatus intended as in the case of the eyes for a temporary use. But human custom elects one side to permanent control. The result is then inevitable that nearly all our cerebration is thrown upon one cerebrum, whereby it becomes overtaxed, as it furnishes the nervous energy for both sides of the body through the crossed and direct tracts. It is a reasonable supposition that this leads to brain fatigue and failure, and becomes the most prominent cause of insanity and brain softening. The result of electing the right hand to special action reacts to establish the left brain to control. We find the most important function of speech and language as well as the faculty of discriminating sounds or the power of musical expression located around the left Sylvian fissure, which is clearly indicated by pathologic lesions.

The apparatus of nerve decussation becomes of no importance after the habit of one-sidedness has been established. The brain commissures, even the great corpus callosum, become for the same reason of little or no effect. I find twenty-five cases reported of absence and destruction of this important structure, by disease, with but little disturbance of general brain functions. So decidedly is this true that Dr. Bruce, who has made the largest collection of cases, declares his doubt of the usefulness of the corpus callosum in effecting co-ordination of brain action. The one-sided body-habit clearly makes this large anatomic structure as well as decussation of no effect, defeating thereby the clear purposes of nature as exhibited in all mammals, whereby we should possess two well paired brains perfectly responsive each to each.

The assumption, so generally in vogue, that one-sidedness is natural is only based on the evidence of majorities, leaving out of consideration choice, fashion or custom and the known effect of training, which, in the human race, is absurd. Statistics as respects mankind, for this and other reasons, are eminently misleading.

All arguments based on anatomy as forcing right-sidedness are very weak. The weight of organs on the two sides are not very unequal and the points of support are central from the spinal column. The very slight differences in length, size and direction of the two carotids in front and the vertebrals behind, as affording an unequal supply of blood to the brain, are of no effect. By their many peculiar curvatures while entering the cranium, by their abrupt change of direction to the horizontal at the base of the brain, the opposing currents neutralizing each other, and by the remarkable common reservoir-like circle of Willis the circulation in the two brains is almost, if not perfectly, equalized. There is no difference in the infant in the muscular and body tissues, contrasting sharply with the adult.

THE RELATION OF PHYSIOLOGIC PRINCIPLES TO ARTIFICIAL RESPIRATION.

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As matter is known only by its properties, so life is known only through its functions and other manifestations. Its state or condition is judged from these. It often happens that by concussion and other forms of shock, by submersion in water or other fluid, by smothering and other modes of suffocation and strangulation, by extreme debility and exhaustion, by exposure to cold or heat, by starvation, by the influence of various narcotics and anesthetics, by sudden influence of grief, surprise, fear or other passion, and very notably, by the failure of a prompt occurrence of breathing of the fetus when it comes from the mother, a state of apparent death (call it obscured or depressed life if you choose) is presented. This state has been variously called drowning, asphyxia, syncope, apnea, etc. On proper examination it will be found that the functions of life which are in abeyance in this state of apparent death or depressed life are these: Innervation, respiration, circulation, calorification, sensation, reflex action, phonation, consciousness, voluntary motion, involuntary motion and muscular irritability. It will also be found, after sufficiently numerous and careful observations, that by physiologic law these functions and vital manifestations are so related that whenever any one of them is restored all the others have a tendency to reappear, and whenever any one of them is depressed or impaired all the others show a corresponding depression or impairment. They are so connected that their inception is in a manner simultaneous, their course concurrent, their activity proportionate and their disappearance approximately coeval. This important physiologic law is of great value in the treatment of the depressed states of life. It suggests that the practice of resuscitation should include all known means and expedients which tend to develop all essential functions that may be undeveloped, to restore such as may be suspended and to counteract the bad effects that may result from the want of all those that may be either suspended or undeveloped. As a rule, the function which in any given case first became embarrassed or depressed or suspended and which led to the embarrassment, depression or suspension of the other prominent functions, should be made the prime or main object of remedial treatment. If, for example, by exposure to excessive cold the temperature of a patient has been so reduced as to depress notably or suspend sensibility, motion, etc., the first and most urgent indication is to restore the proper temperature by suitable expedients. If innervation is, from any cause, primarily impaired, the leading measure should be its restoration by electricity or other available appropriate nerve excitant. If the breathing has from any cause been arrested and its arrest has superinduced an embarrassment of the many functions dependent thereon, then artificial respiration is plainly the measure to which we must look as the direct means of restoring the patient.

There is another rule that should not be forgotten in the practice of the art of resuscitation. Though the vital functions are co-ordinate and have an intimate connection they do not all, when disturbed or suspended, involve in equal disturbances or dangers the immediate existence of life. Some are more rapidly influential than others and have therefore a leading importance in practice. The greatest of these, or among the greatest, is respiration. It is the herald of all higher life. It is the harbinger of calorification, of voluntary motion, of digestion, of secretion and of excretion. No human form can give forth any of the higher manifestations of a living soul until there is breathed into its nostrils the breath of life. Hence, among the measures for resuscitation, artificial respiration is entitled to prominence such as natural respiration possesses among the functions which it is the object of resuscitation to restore. Indeed, many of the other measures employed for resuscitation, such as exciting reflex action by spanking the newborn, slapping the pit of the stomach of the adult, squeezing, rolling, twisting, compressing, dilating the sphincter ani with the finger, exciting the rectum with injections or suppositories, using dashes of hot and cold water alternately, immersing in a cold or mustard bath, rubbing with rubefacients, tickling the fauces or nares, using volatile excitants, etc., and the usual preparative of clearing the lungs of gases, mucus, water, blood and other obstructions, though occasionally inaccurately mentioned as modes of artificial respiration, are at the very most merely preliminary and adjuvant thereto. Some of them are useful, some worthless, and all that are harsh or rough or rapid may be harmful by augmenting an existing condition of collapse.

In addition to the intrinsic merit of artificial respiration there have been other causes of late to urge its importance upon the attention of our profession. In the course of the current half century the great battles, campaigns and wars that have occurred, the augmentation and multiplication of industries and pursuits perilous to life and health, the increase and concentration of population, the allurements, comfort and speed of voyage and travel, have multiplied the cases of accidents and injuries. In response to the demand thus increased, the humane and Christian sentiment of the period aroused itself to great activity in the formation and training of life-saving organizations and in the study and teaching of life-saving methods. During this same progressive half century it came to the knowledge of practical obstetricians (an appalling fact) that thousands upon thousands of speechless human lives were being annually lost at the hour of birth from the lack of a well-devised, prompt and appropriate management. It is not surprising that so great a demand for life-saving methods should tend to produce an over-supply, a result that seems to have happened in the matter of artificial respiration. Previous to 1856, *insufflation* in one way or another was the traditional mode of introducing air into the tubes and vesicles of the lungs of the so-called asphyxiated, especially if these were newborn babes. There are now at least twenty methods, more or less widely known. These differ so greatly and in so many respects that it is not supposable that they can all be equally applicable to all cases, or even to any one case. Some of them are based upon one principle, others on a very different and in some respects conflicting or contrary principle. Some of them may be more appropriate in some cases and less so in others. Some may be admissible in certain cases and inadmissible in others. Some are not safe in any case. Some are claimed to be best suited to the cases of infants, some to those of adults and some to be the best for patients of all ages and sizes. Some of the methods originated in accident, some came prematurely as an urgent need after older methods had been tried and had failed; some after too little observation, experiment and study; a few after profound and prolonged consideration.

There are too many methods. Doubtless the fittest will ultimately survive and the less fit will one by one pass out of use and there will result to the physicians of the world a safe, uniform and effective practice in artificial respiration. But this needed result ought not to be left to the slow work of unaided evolution. A firm reliance may be placed in the sure, safe and necessary guidance of science for the settlement of the facts of science. Wherever there is great variety, diversity or contrarity of method, precept or practice, an appeal to scientific principles, experiments and demonstrations is the direct pathway to truth, harmony and unanimity, and through these to wise methods and successful practice.

For brevity and clearness, it is best to say no more now of the collateral measures and aids in resuscitation and to force into close conspectus:

1. The condition to be remedied by artificial respiration and exactly in what this consists.

2. The lesson to be learned, mainly from physiology, but sanctioned also by anatomy, pathology and clinical medicine, as to the proper mode of accomplishing artificial respiration.

3. The leading methods of artificial respiration now in use and how far they conform or fail to conform to physiologic principles.

The condition to be remedied by artificial respiration is apnea, and artificial respiration consists in mechanically and rhythmically introducing air into the proximity of the blood in the pulmonary capillaries and withdrawing it therefrom. If the temperature of the blood be maintained at about 98.4 degrees F. this mechanical part of respiration virtually insures the chemical and therefore the purpose of artificial respiration is practically accomplished by causing air to pass into the lungs and out of them alternately, regularly and rhythmically. In physiologic or natural respiration the ingress and egress of air and its approximation to the blood, and the reactions between air and blood are the same as in artificial respiration, but the chest movements are due to inward and anatomic influences. In artificial respiration the movements are imparted from without. There are, in all, only two ways in which artificial respiration can be practiced, viz., *a*, the air may be forced into the lungs, the chest walls thus forced outward and the air removed by the weight and resiliency of the chest walls, aided by compression; or, *b*, the chest capacity may be increased and diminished alternately and the air thus mechanically caused to pass in and out successively.

Now, in normal or physiologic respiration *the forcing of air into the lungs plays no part whatever*, but on the other hand *the alternate increase and diminution of the chest capacity by movements of its periphery are the sole agency in bringing air into the lungs and then causing it to go out.*

What relative part the different portions of the periphery of the chest cavity have in varying the capacity of this cavity is plain from their anatomic structure as well as from the facts of physiology. Posteriorly and anteriorly the boundary of the chest cavity is bony and virtually fixed, consisting of the thoracic portion of the spinal column behind and of the sternum before. The lateral boundaries consist of the ribs and intercostal and superimposed structures, have very restricted movements and, therefore, little effect in varying the chest capacity. Thus the posterior, the anterior and the lateral poortions of the chest, so firm and so little movable, proclaim that they are mainly for the support and protection of the parts within. But inferiorly the chest cavity has no fixed limit and varies its capacity easily, greatly and rapidly, by the free movements of the diaphragm through a very wide range. Here, then, in this wonderful muscle is certainly found the leading mechanical instrumentality of respiration. With the exception, perhaps, of the heart alone, it is the most active muscle of the animal body. From infancy to old age, it rests not, slumbers not, sleeps not. If its contractions are less frequent than those of the heart, they are much more prolonged. Its allegiance to the will is less unconditional than is that of the heart. Such is its power that through reflex influence it can call to its aid costal respiration or abdominal respiration as the varying exigencies of disease or condition may require. With matchless mathematic accuracy it is attached to the liver at the one single spot that causes the downward traction of this great gland to augment to the utmost the chest capacity in the upright position and its upward pressure to diminish that capacity when recumbency is approached. The obvious lesson of physiology, therefore, is clearly this, that the diaphragm being the foremost instrumentality in natural respiration should be employed as the leading agency in artificial respiration. But this invaluable lesson has not been left to rest on even this plain and satisfactory evidence, but has, as if in proclamation of its transcendent importance, received a most rigid demonstration from physiologic mathematics. Soon after the invention of the spirometer by Hutchinson, it was proved by actual measurement that the capacity of the chest is greater in the erect than in any reclined or in the recumbent position. Thus was demonstrated in stubborn figures a great fact for physiology, for pathology and for therapeutics. The chest is a cylinder and the diaphragm is a piston whose to-and-fro motion varies the chest capacity and causes an ingress and egress of air. In the recumbent position the liver and other contents of the abdomen press upon the diaphragm and diminish the chest capacity.

In changing from the recumbent to the erect position the pressure is gradually removed and the chest capacity increased. It is obvious that all that is necessary for the air to enter the lungs is to change the patient from a recumbent or any inclined position to the erect one, and all that is necessary to cause air to pass out of the lungs is to move the patient back from the erect to any inclined or to the recumbent position. But I have ascertained that the increase of capacity of the chest is slow and small in moving from the recumbent position to an elevation of forty-five degrees, and rapid in ascending from forty-five degrees to the erect position. It is not, therefore, essential in practicing artificial respiration to move the patient through the whole range from recumbency to erectness, but is sufficient to use only the upper half of this range, merely moving the patient from a forward inclination of forty-five degrees to the erect position and back again. Every upward and backward movement produces an inspiration, and every forward and downward movement an expiration, and the two together a complete respiratory act. By regularly repeating these acts artificial respiration is rhythmically performed and can be prolonged at will. Any one, by experimenting on himself, will find that if he leans forward from a perpendicular to an inclination of about forty-five degrees, he will mechanically and involuntarily make an expiration, and if he then straightens back to the erect line, he will mechanically and involuntarily make an inspiration. *He can not by any effort of volition prevent the result or reverse it.*

The fact of the increased capacity of the chest in the upright position, gives a solution of certain striking clinical facts. It furnishes the rationale of orthopnea and makes clear the reason why the smothering asthmatic instinctively and hurriedly leaves his horizontal posture, assumes a sitting position and, supporting his elbows on his knees, or on a table, breathes by performing in miniature the very movements above described. *He can not breathe without performing the movements, and he can not perform the movements without breathing.*

Many of those who have introduced, or have written upon methods of artificial respiration, have maintained, or at least have admitted, that in any case of collapse, the relaxed tongue and epiglottis have a tendency to fall back, close the glottis and thus prevent the access of air to the lungs. Dr. Fothergill is said to have published an opinion of this kind in 1794. Marshall Hall, Mr. Bowles and Mr. Fox made some experiments, published in the London *Lancet* in 1856, which they thought proved that in the supine position the relaxed tongue must necessarily fall back and exclude the air from the trachea. But the Royal Humane Society and many of the leading medical men of Great Britain, after thorough investigation and careful experimentation, rejected the opinion of Fothergill and Marshall Hall concerning this alleged obstruction of the glottis, and laid aside the use of Hall's "Ready Method," the main merit claimed for which was the avoidance of this supposed obstruction. The whole discussion originated in a great mistake of these great men. The physiology of the closure of the glottis was misunderstood by them, though it had been clearly made out under numerous observations and experiments by Magendie and published by him in his great work on physiology, in the early part of this century. This closure is effected not by the descent of the epiglottis, but by the ascent of the glottis. Any one can satisfy himself of this by placing his finger on the upper margin of the pomum Adami and performing the act or deglutition. He will find that the glottis during the act rises at least an inch in the average person and hides itself beneath the epiglottis, effecting the closure in this way. If there is any danger therefore of this alleged obstruction of the glottis, it is least in the erect position, in which the weight of the lungs and trachea tend to keep the glottis pulled open, and greatest in the recumbent position adopted in Hall's "Ready Method" and Sylvester's method, and in all the inverted or head-down positions in which the lungs and trachea gravitate more or less toward the epiglottis.

It now only remains to note cursorily the leading methods of artificial respiration now in use, and to remark wherein each may be found in accord or not in accord with the physiologic principles presented above.

Insufflation (traditional) is perfomed by placing the patient in the recumbent, supine position, grasping with one hand the nose and with the other compressing the esophagus, applying mouth to mouth and inflating the lungs of the patient with the expired air of the operator, then allowing and aiding the escape of this air by opening the patient's mouth and pressing his chest, and repeating this procedure about fifteen times per minute. Objections: The recumbent position is one of small chest capacity; the air used is vitiated and non-vitalizing; the manipulations complicated, difficult and oppressive to the patient; the stomach is liable to be inflated, the air cells are liable to be damaged by stretching and even fatally ruptured, and uses of air to dilate chest contrary to nature.

LeRoy's method consists in applying a many tailed bandage around the chest of the patient in the recumbent supine position and producing chest movements by alternately tightening and slackening of the bandage. Objections: The recumbent position; the two operators required; the delay and trouble in getting bandage.

Marshall Hall's ready method (1856).—Place the patient in the recumbent position and prone. Turn the body gently but completely on the side and a little beyond and then back on the face alternately, repeating these movements deliberately, efficiently and perseveringly, fifteen times per minute. When the prone position is restored make equable but efficient pressure along the spine removing this pressure immediately before rotating back on the side. Objections: Recumbent position; small difference of chest capacity commanded by the movements, the harm that may be caused by the pressure.

Sylvester's method (1858).—Place the patient on his back with his shoulder's raised and supported on an article of dress, folded. Raise his arms upward by the sides of his head and then extend them gently and steadily upward and forward for a few moments. Next turn the patient's arms downward and press them gently and firmly against his sides for a few moments. Repeat these movements alternately, deliberately and perseveringly fifteen times a minute. Objections: The small chest capacity of the virtually recumbent position and the small variation of chest capacity produced by the movements.

H. F. Campbell's method.—Place the patient in the erect sitting position with his arms by his sides and his head erect. Raise his arms up by his head to a parallel position and exert upward traction on them. Replace the arms to their first position by the sides and press them against the chest. Repeat these movements *ad libitum*. Objections: The relatively small variation of chest capacity attainable even in the erect position steadily maintained.

Pacini's method.—Place the patient supine with shoulders and head slightly raised. With the thumbs well back on the scapular region and the fingers under the outer end of the clavicle and in the axilla, draw the clavicle and shoulder upward and backward, thus causing the pectoral muscles to elevate the chest walls. Then turn loose and let the chest walls descend, aiding by gentle compression. Repeat regularly as desired or required. Objections: The small chest capacity of the virtually recumbent position and the small variation secured by the movements.

The Michigan method.—Place the patient flat on face and stand astride of him with your face toward his head. Seize his shoulders and elevate his chest while you count slowly "one, two, three;" then allow the chest to return to its first position and press gently but firmly while you count "one, two." Repeat these movements fifteen times per minute. Objections: The horizontal position with its small chest capacity; the small increase obtainable by any elevation of less than 45 degrees, and the interference with ingress of air due to flexure forward of neck and trachea.

Shepard's method.—Place the patient on a plank or door shutter, and place the shutter or plank crosswise at its middle on a log or similar report. Then give to the patient's head and feet an alternate up-and-down movement by a like movement of the plank or shutter. This alternately increases and decreases the chest capacity, thereby promoting ingress and egress of air. Objections: Not available for infants; inconvenient and often impracticable; movements can not be carried to above 45 degrees and, therefore, can not reach the higher measures of chest capacity.

Nélaton's method (so-called).—This is a misnomer, not a method of artificial respiration, but of drainage of narcotic, anesthetic or other heavy vapors or poisonous gases from the air passages. It consists in holding up the lower parts of the body and causing the head to hang down.

Laborde's method consists in seizing the tongue by the tip, drawing it out and allowing it to recede rhythmically. This rhythmic action, by a physiologic law, tends to arouse other rhythmic movements, including the respiratory. It is not properly respiratory, but merely excito-respiratory.

The Alabama method (1860).—Place the patient in sitting position inclined forward about 45 degrees. Move the head and shoulders upward and backward to the perpendicular position or a little beyond, taking care that the trunk is drawn up to perfect straightness and the head, neck and shoulders well up. Lean the patient forward and downward to an inclination of about 45 degrees, making cautious and reasonable compression of the chest. Repeat these movements deliberately, perseveringly and with reasonable frequency until no longer needed, or until all hope of success is lost.

Howard's method (1871).—Place the patient on his back with a roll of clothing under it, so as to raise the pit of his stomach above the level of any other part of his body. Kneel by the side of or astride the patient's hips and, with the balls of the thumbs resting on either side of the pit of the stomach, let the fingers fall into the grooves between the short ribs so as to grasp the waist. Now, using the knees as a pivot, let the operator throw all his weight forward upon his hands and squeeze the waist between them as if he wished to force everything in the chest upward out of the mouth, and deepen the pressure while he counts slowly, "one, two, three;" then suddenly let go with a final push which springs him back to his position on his knees, where he remains so long as to count "one, two." These movements are to be repeated and gradually increased in frequency from four to fifteen times per minute and continued from one to two hours, or until the patient breathes. Objections: The disadvantage of the horizontal position is present and is made worse by the sharp flexure at the waist; the great pressure at the pit of the stomach approaches in effect punches or blows on that most sensitive part, and through the injured function of the solar plexus, greatly depresses and endangers the patient.

Schultze's method. — Stand up, grasp the baby around the shoulders with your fingers posterior and thumbs anterior, meeting in the axilla, thus suspending the baby, feet downward and head upward, in front of you with its face from you, swing it rapidly through a semicircle in front of you, bringing it to rest with its buttock near your face, and after a slight pause reversing the movement. Repeat these movements as required. Objections: Requires great care and gentleness and exposes to rapid reduction of temperature.

Fell's method consists in forcing air into the lungs through the incision in laryngotomy or tracheotomy. For this purpose a bellows with tube is employed. This is designed mainly if not exclusively for surgical cases. Objections: Like insufflation it forces instead of attracting air into the lungs; increases the danger of overstrain and rupture of the air vesicles.

Reynolds' method consists in grasping the babe, with the hands just above the pelvis, the thumb being on one side, the fingers on the other and the palm applied to the sacrum and adjoining part of the spine, and thus causing the babe to hang head downward. The other hand of the operator is then glided along the babe's abdominal surface and used to apply gentle pressure while anterior flexion is imparted to the trunk of the patient. Objections: Looks to drainage rather than to aeration and chest expansion.

Other methods are: Dyer's method; Dew's method; Forest's method.

These methods consist in varying the chest capacity and the in and out movements of the air, by manipulations and varying positions of the babe. Objections: Do not sufficiently recognize the importance of the upright position and of the agency of the diaphragm.

THE RELATION OF FOOD, AIR AND EXERCISE TO HEALTHY GROWTH AND DEVELOPMENT.

Presented to the Section on Physiology and Dietetics, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY E. STUVER, M.Sc., M.D., PH.D.

Member Colorado State Medical Society (Vice President 1894); Member American Medical Association; Member International Medical Congress (Berlin); Active Member National Educational Association, etc.

RAWLINS, WYO.

"Man is what he eats," is a truism quite widely appreciated theoretically, but sadly disregarded when put into everyday practical use. Nor is this true only of the unprofessional multitude but applies with almost equal force to the great army of physicians who by their habits say in the most forcible manner, "Do not eat as I eat but eat as I tell you."

This being the case, and as an ounce of good example is worth pounds of precept, unless put into practice, let us see what influence a rational system of dietetics, pure air and plenty of exercise would have on the growth and development of the rising generation. I say rising generation because the time spent in trying to reform confirmed transgressors whose habits have become fixed by years of indulgence, is largely lost and can be spent to much better advantage in preventing the formation of bad habits by the young and helping them to overcome those which have been formed.

I shall use the term food in its comprehensive sense, including beverages of all kinds. The period of growth and development is characterized by rapid metabolism; old tissues are broken down and new ones formed more rapidly than in the mature body. These rapid changes necessitate a larger proportionate quantity of food and require that the digestive and assimilative organs be in a healthy condition so that sufficient pabulum may be furnished to supply the needs of the rapidly growing organism.

A healthy condition of the digestive and assimilative organs being one of the prime requisites to insure proper growth and development, the question naturally arises, How can such a condition be attained? Every child has the right to inherit a sound physical organization, and it should have a mother capable of furnishing it with an abundant supply of nature's true nutrient material which, if normal, far outranks all other foods for the infant, the patent baby-food manufacturers to the contrary notwithstanding. During the early years of childhood the food should consist largely of milk, be plain, nutritious and unstimulating and regular habits of eating should be established. Young children frequently suffer from thirst and should be given cold water regularly. This will often afford relief when soothing syrups fail. In this connection I insist on the importance of protecting the child against stimulants and narcotic poisons of all kinds. To accomplish this the physician must throw sentiment aside and give the officious grandmothers, neighbors, *et id omne genus*, distinctly to understand that the child has some rights which should be respected and that one of these is that it should be allowed to form its own drug and poison habits. If this is not done the infant will scarcely be born before some one will suggest that an abominable decoction of herbs or a fiery dose of liquid poison in the shape of brandy and water be poured down its defenseless throat in order to keep it quiet. The natural protective instincts rebel against all stimulants and narcotic poisons.[1] To the infant or young child the first dose of an alcoholic stimulant is exceedingly distasteful, and it is only after a number of trials have been made and the natural protective instincts have become obtunded that it begins to be at all relished. The system at first surprised and insulted makes a vigorous effort to throw off the poison, but at each repetition the resistance becomes less until it finally adapts itself to the abnormal stimulation and the stimulant becomes an imperatively demanded want.

In this way an abnormal condition of the system with a craving for pungent, highly spiced foods, alcoholic stimulants and narcotics is established. This not only causes a distaste for plain and nutritious foods which are absolutely necessary to the most complete growth and development, but naturally leads to the use of tobacco in its various forms and may eventuate in the use of alcoholic stimulants and other narcotic poisons, and finally we may have before us one of those saddest of all spectacles—a grand physical organization shattered and wrecked, a brilliant mind weakened and dethroned and a moral nature which, under other conditions, might have strengthened and elevated mankind, reduced to the lowest depths of degradation—in short an alcohol maniac, a morphin or cocain fiend or a combination of all in one

If every physician could have these sad tragedies burned into his very soul and would then rise to the true stature of his noble calling and impress upon his friends, his patients and the world, the causes of these terrible examples which are continually falling under his observation and the means by which many of them could have been averted, we would soon see a decided improvement in the habits and health of the young.

While proper food and correct dietetic habits are of the greatest importance to the welfare and happiness of mankind, the quality of the air or gaseous food, of which we take into our lungs about one pint at each inspiration is, if possible, of still greater importance. Man can live on one meal a day and enjoy good, nay, even robust health, he can limit himself to the simplest and plainest kind of a dietary and attain a ripe old age; but let the supply of oxygen be cut off and he succumbs to carbonic acid poisoning in a very short time.

Plenty of pure air and properly regulated outdoor exercise are necessary to give nerve force; to stimulate the respiration and circulation of the blood; to develop the muscular system; to throw off or destroy the poisons constantly accumulating in the body; to strengthen and calm the mind and to produce the best moral development in persons at any age.

During the period of childhood and youth, however, when the metabolic changes are much more active;

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[1] Vide Oswald's Physical Education.

when the poisons from the breaking down cells accumulate much more rapidly; when the muscular system is in an undeveloped condition and needs almost constant exercise for its proper growth; when the brain is more unstable, more easily irritated and more susceptible of being permanently injured, their importance is still much greater, and should be much more fully appreciated, than they are by the majority of people. Living and sleeping rooms should be large, well lighted and thoroughly ventilated. The covers should be thrown back from the beds, the blinds and windows opened and the pure, life-giving air and sunshine allowed to bathe the living and sleeping rooms. This may tone down the colors of beautiful carpets, but it will at the same time destroy foul exhalations and disease germs and put roses of health in the pallid cheeks of delicate children, and give a buoyancy and zest to life which can never be experienced while living in a foul atmosphere. Then, too, the school rooms in which children spend a large part of the time during the most critical years of their lives should conform to the most approved sanitary knowledge of the age. Ample provision should be made for complete drainage, the best methods of heating and lighting and for thorough ventilation should be employed. To insure a sufficient amount of oxygen all school rooms should be aired both morning and evening and at intervals during the daily sessions. This can be best accomplished by having frequent recesses during which the doors and windows are thrown open and the rooms thoroughly ventilated. President Eliot of Harvard University, President Holbrook of Lebanon, Ohio, President George L. Osborne of Warrensburg, Mo., Prof. Joseph Baldwin of Austin, Texas, and many other eminent educators advocate an open air recess at the end of each hour. Their contention is certainly based on sound physiologic and hygienic principles, and if their suggestions were carried into effect generally, there would be an immense improvement in the health, mental attainments and moral character of children all over the land.

I do not believe any one will question the fact that frequent outdoor recesses would have a most beneficent effect on the health of the pupils. Nor do I think, when the matter is carefully considered, that the conclusion will be different as to their influence on mental and moral development It is well known that in order to insure proper development of the muscular system, the motor centers are developed early and hold a commanding position. In these centers nerve force accumulates and is stored until discharged in muscular movements, and if the attempt be made to restrain these movements beyond a certain limited time by means of the will, much nerve force which should have been used in quiet thought and study will be wasted and at the same time the physical organism will be hindered in its development. Then, too, the toxins which have been accumulating in the blood poison, weaken and tire the brain, and as a consequence mental results are unsatisfactory, because impressions made on a tired brain do not last, and the moral nature is depraved because pure and generous thoughts can not long exist in a foul body.

The Venom of Serpents.—The well known fact that the venom can be sucked out of a wound without inconvenience, is attributed by Fraser to the bile in the alimentary canal. He has demonstrated that even very small quantities of bile will render snake venom harmless.—*Nouv. Remèdes*, January 8.

THE HAIR-CELLS OF THE ACOUSTIC AND AMPULLAR AREAS OF THE EAR.

Presented to the Section on Physiology and Dietetics, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY B. ALEX. RANDALL, M.A., M.D.
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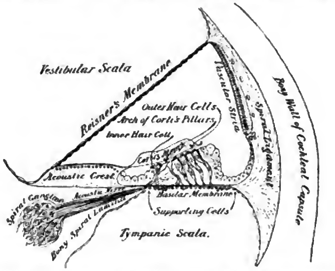
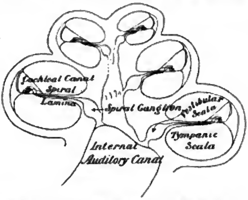
There ought to be small difficulty in demonstrating these structures to the satisfaction of the trained microscopist, who is accustomed to piece together fragmentary structures in full realization of the infrequency of ideally complete preparations; but those more engrossed in clinical medicine are less apt to obtain from our usually imperfect specimens a clear and coherent picture. The less direct method, therefore, of tracing the development of these specialized cells and their auxiliary apparatus from the primordial blastoderm, has the advantage of showing with greater ease and certainty the differentiation of these and adjacent cells of like origin; the building up of the complex structures of which they form a part and by a series of demonstrations, confessedly imperfect individually, it forms a sort of composite picture little short of the ideally complete.



Shortly after the formation of the cerebro-spinal axis by involution of the epiblast, a similar process at each side of the head of the embryo invaginates a new bit of epiblast and forms a closed and independent sac, the otic vesicle. This elongates and throws out hollow buds, forward to form the spirally coiling cochleal tube, inward to constitute the endolymphatic duct and sac, while others starting up, back, out and down, curve to meet and coallesce into three semi-circular canals, each occupying a plane at right angles to that of each of the others. Meanwhile the central sac divides into an anterior saccule and posterior utricle, united only by the forked endolymphatic duct, and the full-formed mammalian labyrinth is complete. Every part of its wall is made up of one or more layers of the cells which have been invaginated from the epiblast; but while it has been developing and the surrounding mesoblastic tissues have been building an elaborate set of supporting structures, the advent of nerve-fibers from the brain has enabled certain of its parts to undergo special differentiation. Such nerve-stimulus is applied to no part of the semicircular canals except the concavity of the flask-shaped ampulla which connects one end of each to the utricle. Here a crest forms upon which the cells become elongated cylinders surmounted by stiff hairs, above which floats a gelatinous film, apparently an early product of their activity. These cells are demonstrably the end-organs of the nerves here distributed, which as ultimate fibrils have been traced to or into the hair-cells. Each has a thick free end, above which extend the hairs, generally agglutinated into one or more marked projections which extends well out into the lumen of the ampulla.

In the vestibular sacs, a like area is marked off, larger, flatter and less pronounced. That of the utricle is on the side nearest to the oval window, and is almost continuous with the crest of the horizontal external semicircular canal, the bases and not the hair-crowned tips of its hair-cells are turned, therefore, toward the entering waves of sound. The "macula" of the saccula, on the contrary, is on the farther mesial wall, with the hairs of its cells directed toward the foot-plate of the stapes. Each of these areas presents cylindrical hair-cells with supporting layers beneath, probably of reserve cells to replace those which become effete. The hairs are short and separate and the gelatinous blanket which floats above these as well as all the others, is loaded with crystals of carbonate of lime, the otoliths. Here too, the nerve connections have been satisfactorily demonstrated.

This much is fairly simple, for sections can put these parts with little confusion before you. But in the cochlea the complexity of structure and relation is far greater. Here the cylindrical tube which we have seen coiling forward, has become narrowed off from the saccule with only the tiny "canalis reuniens" to unite them. It has become compressed into a form triangular in section, one wall forming the convexity of its turns and being in close relation always to the ensheathing mesoblastic tissues which are building the future bony "snail-shell." Within the coil a conical axis of cartilage, early ossifying, pushes forward with the fibers of the cochlear nerve and throws out about its branches a hollow shelf with spiral winding to meet the inner edge of the triangular cochlear tube. A fibrous extension of this, out beneath the under (lower-mesial) surface, forms the important membrana basilaris, the stiff radiating fibers of which probably act as the strings of a musical instrument to receive and vibrate to tones of various pitch.



Blood-supply and probably trophic nerve-fibers cause the cells of the outer wall to develop into a gland area of cylindrical cells, the stria vascularis, doubtless secreting the endolymph. The cells of the upper wall flatten into a delicate pavement upon Reissner's membrane, inconspicuous and probably functionless. It is upon the basilar membrane, however, that the really important differentiation of the neural cells takes place, for it is here that the cochlear nerve-fibers are distributed. An elaborate supporting structure of arching Corti's pillars forms a tunnel against which lean the hair-cells, in single row to the inner, in three to five rows outward. Beyond them in each direction cylindrical and spherical cells pile up, perhaps in mere support, more probably in reserve; and above them a reticular membrane steadies them while presenting meshes for the protrusion of their ciliated ends. Over all hangs the usual gelatinous blanket, Corti's membrane, here attached at its inner margin to a toothed crest of the periosteum of the spiral lamina. Its function here as elsewhere is somewhat doubtful. It may serve to dampen the vibrations of the underlying structures as soon as cessation of the exciting sound-waves robs them of energy enough to throw it clear of such interference, or it may better be compared to the hammer which strikes upon the hairs to stimulate the nerve-endings in them. As in the pianoforte, it may subserve both purposes.

The hair cells themselves are noteworthy as being twin-structures, consisting of a fusiform Deiter's cell, below having a delicate foot emplanted upon the basilar membrane in strict alignement with its fellows of the same row, and its upper process attached to the reticular membrane above and adherent to the peg-shaped hair-cell which it holds aloft. The hairs are short and stiff, set in crescentic order across the summit of each hearing-cell and protruding through the meshwork which encloses them. The fibers of the cochlear nerve enter the modiolus through a series of minute openings and to pass out between the plates constituting the bony spiral lamina. A spiral canal which they intersect in their entrance to the lamina contains a ganglionic mass with which they are in intimate relation. At the margin of the lamina they pass upward through a regular row of minute foramina, losing their sheaths as do those of the optic nerve at the lamina cribrosa; and breaking up into ultimate fibrils, they can be traced, some to the inner hair-cells, others across the tunnel of Corti's pillars to the outer hair-cells and some along the tunnel to undetected termination. It is a mooted point whether they penetrate the hair cells or only reach their exterior; but it seems relatively unimportant to trace the precise manner of their connection, so long as there is no doubt of the main fact of their direct distribution to these hearing-cells.

In spite of all attacks upon it, the theory of Helmholtz, as to the function of the cochlea in the perception of musical tones stands without reasonable alternative. The stiff radiate fibers of the basilar membrane, increasing manifold in length and tenuity from the basal to the apical turns, are like so many harp-strings (24,000, by some estimates) attuned to vibrate to sounds of every pitch audible to man. Upon them rest the hair-cells, fitted to convey to the sensorium all recognizable variations of pitch; and pathologic research enables us to predict cochlear lesions which are found in the lower or upper parts of the cochlear turns according as there was loss of perception for high or low tones. Noises of mixed or unmusical character are probably perceived in the differentiated portions of the vestibular saccule and utricle.

As to the semicircular canals, most authorities concur in regarding their function as pertaining to equilibrium and not to audition. Clinical and experimental pathology unite to show that severe vertigo is usually the result of irritative lesions here; but that this is relieved by the advance of the condition to the destructive phase. This is the basis of Charcot's use of heroic doses of quinin for labyrinthine vertigo. As to the physiology of these canals as constituting a space organ, this has an easy explanation and demonstration, usually overlooked. Just as the water in a glass remains nearly unmoved while the glass is rotated rapidly around it, so the movements of the head rotate the semicircular canals upon their contained columns of fluid, making in one or more of the canals virtual currents in reverse of every motion. The hairs of the ampullar hair-cells instantly yield to and record these currents, their strength, direction and duration, and thus convey to the sensorium a report of every such alteration of position. The muscle-sense and the palpable recognition through the skin of the direction of gravitation aid the eyes in furnishing corroborative or corrective data, means which may at need replace the lost space-organ of the aural labyrinth in informing us of our relation to our surroundings; but so long as it is present and unimpaired, it is probably the foremost source of such information.

AIR IS FOOD; NITROGEN.

Presented in the Section on Physiology and Dietetics, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY EPHRAIM CUTTER, M.D., LL.D.
NEW YORK, N. Y.

Even if unproved nitrogen is in too large proportion in the air to be inactive. When a student I heard Profs. B. Silliman Sr., Josiah P. Cooke and R. E. Rogers teach that nitrogen was negative and useless, a diluent, and that all biologic researchers maintained this position.

I could not, while respecting the dictum of these eminent men, assent to this, because nitrogen was four-fifths the bulk of air. It seemed to me that the chemists were like physicians who could not tell what was the matter, when it was patent to all that there was something wrong, and who must confess their inability in diagnosis.

Since my pupilage I have eagerly watched for evidence to support my position, and have found some that I present hereunder.

AIR IS FOOD.

This idea is over 3,000 years old. Air is indispensable to life. Eaten twenty times a minute during life. If oxygen combines with the tissues, blood for example, it becomes a normal part of the body. But oxygen is only one-fifth of the air. Nitrogen is four-fifths, and yet has nothing to do as food. This is contrary to common sense. What other food is there where only one-fifth is utilized?

Water is food. None deny that hydrogen is not food. To be sure there is more or less waste of food; but four-fifths, can this be? Are 80 per cent. of clothing, tissue, apples, beef, potatoes useless?

Again nitrogen is found in the body in large quantities. Take the proteids, C, H, O, N, S, which are the most important animal and vegetable compounds, and no phenomena of life occurs without their presence.

Subdivided.—1, albumins; 2, globulin; 3, albuminates or derived albumin; 4, proteoses (found in digestion, and in time passing into peptones); 5, soluble proteids formed by digestion by pepsin or trypsin; 6, coagulated proteids. Nitrogen is not useless and negative here certainly.

As ammonia nitrogen is found in the blood, feces, urine, sputum, horny tissue, etc. Indeed in proteids we have nitrogenous foods in abundance.

Nitrogen is active enough in the following substances: *a*, common gunpowder which is made with saltpeter, KO, NO_5: *b*, gun cotton made of cotton and NO_5; *c*, nitro-glycerin; *d*, dynamite. In these substances nitrogen is active enough to satisfy the most exacting critic.

Explosives are positive substances, acting with terrific force and violence. They are the least negative and useless substances. Let us quote from the most admirable "Standard" dictionary the list of explosives containing nitrogen; 1, gunpowder family, 25 varieties; 2, nitrate mixtures with the gunpowder, Na, Ba, NH_4, O, 66 varieties; 3, nitro-glycerin family, 121 varieties; 4, gun cotton and nitro substitution compounds made by substituting NO_5 for H, 89 varieties; 5, picric acid, $C_6H_3N_3O_7$ family, 20 varieties; 6, fulminic acid group = $H_2C_2N_2O_2$, 52 families; 7, Sprengel explosive family, 7 varieties; must have nitrogen, non-nitrogen explosives; KO,ClO_5 family, 78 varieties. Out of 456 explosives 378 are compounds of nitrogen, or about 83 per cent. But when it is considered that the chlorate of potassium group after explosion furnish compounds of nitrogen from the air, it may be asserted that all explosives depend on nitrogen. This is a strong showing. Explosive nitrogen in these compounds is in smaller proportions than in the air we breathe, and yet it is deemed inert in us.

BACTERIAL NITROGEN.

It has been proved that bacteria living on the roots of plants do enable the plants to assimilate nitrogen. To show that the chemists are veering to the writer's position I quote the following paragraphs from W. B. McVey, professor of chemistry, College Physicians and Surgeons, Boston.

IMPORTANT FUNCTIONS OF NITROGEN.

The great strides that have been made in the advancement of physiologic chemistry, have to my mind called for a more thorough study of the so-called indolent element, namely, nitrogen, which is usually regarded as having no particular function except to act as a dilutant or a check, so to speak, on the activity of oxygen.

Let us for a moment consider the growth and development of cell life, its causes and effects. It is a well known fact that a complex form of matter was necessary before life could appear and before the physical agencies of nature could elaborate the substance in the form of what we call protoplasm, which is the same in all animal bodies, to-wit, a viscous jelly-like matter possessing motion, secretion, digestion, excretion and reproduction.

As we ascend from the first cell of protoplasm in the scale of vitality, we reach that degree where the crystallizable matter of the higher species is required, so we find intimately combined in the albuminoid principles, the colloid (gluey) and crystalloid (crystal forming). The colloids of protoplasm are proteids and permeate the crystalline part of the animal body, and in presence of the mineral matter therein continues the chemical change going on.

The crystalloids go to build up the fiber of the body. The colloid institute and continue the power of its reproduction, and carbon and phosphorus being present in the former, life depends upon a certain chemical nucleus in order to associate itself with matter. Every living thing requires this nucleus.

Heat, light, electric and mechanical power and magnetism are the agencies acting upon this nucleus through the agency of nitrogen, causing and bringing by colonization the many kinds of animal bodies into existence.

The spectroscope shows that sulphur and phosphorus are compounds and not elements; and that phosphorus is produced from a differentiation of sulphur by the action of chlorin and hydrogen. It is the potential action of nitrogen upon this that causes the chemical and physical changes, and starts the process of ultimate production of protoplasm and afterward animation. It is brought about by action of sunlight upon the phosphorus contained in the nucleus, attracting the electric energy that is pent up in the so-called useless nitrogen. Then by the aid of magnetic iron, carbon and amorphous matter draws forth the electric energy from the earth through phosphorus as a nucleus, which starts the oxygenating process.

Nature requires motion in animal bodies before locomotion can take place, the force and power of such motion being supplied from the food and air.

If it were not for nitrogen locomotion could not take place. Pent up it is more electric potentiality than any other element in nature. This potentiality institutes the power of locomotion in all animals either by direct or indirect transmission and modification.

It is not the vivifying power of oxygen but the explosive power of nitrogen that originates locomotion, and by its rhythmic explosion the respiratory process originates and continues, which is the cause of that motion in nutrition.

Nitrogen, which is supposed to be the most indolent thing in nature, is indeed the most powerful and essential to the movement of all bodies, since explosion depends upon the constant instantaneous liberation of nitrogen, it also acts as a controlling agent to prevent the too rapid reduction of the tissues. It controls the chemical action of respiration.

Nitrogen enables the body to perform its functions to the end of the organizing process, which culminates in the separation of the vital from the chemical.

Conclusion.—If life is made up of motions and emotions, and if nitrogen is such a kinetic agent actual and potential as has been pointed out, then it appears reasonable that it is not a mere diluent and negative in human food.

THE ACTION OF ODORS, PLEASANT AND UNPLEASANT, UPON BLOOD FLOW.

Presented to the Section on Physiology and Dietetics at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June, 1-4, 1897.

BY EPHRAIM CUTTER, M.D., LL.D.

NEW YORK, N.Y.

In 1859, Alvan Clarke made me a laryngoscope. After 1862 I studied auto-laryngoscopy and autorhinoscopy. I took the first photographs in this continent of the living larynx in 1866; copies of these are deposited in the United States Army Medical Museum, Washington.

I was and am able to demonstrate to myself, my posterior nares, either Eustachian orifice, turbinated bones, dome of pharynx, vomer, etc.

Among the physiologic studies made in 1866 was the action of cologne, roses, camphor, ammonia, sulphur fumes, etc., upon the erectile tissues of the turbinated bones. They were of a pale ashy white color ordinarily. A few whiffs through the nose of any of these odors increased the blood flow and produced immediately a livid injection and turgescence of the erectile tissues on the turbinated bones, that stood out as clearly and positively as the erection and turgescence of the livid wattles of an excited turkey cock. It was a surprise to find that these pleasant and unpleasant odors acted alike. I found in the case of sulphur fumes, that when I could not inhale them from a match ignited before my face, with open mouth, I could breathe readily through my nose. This proved that the erectile turgescence availed to remove the sulphurous oxid so as to have respirable air and protect the inhaler.

The morphology of nasal excretions excited by the morphologic elements found in the impure air, also proved the value of the irritated turgescent mucous membrane of the nares in arresting foreign bodies borne in on the atmosphere.

ARROW-ROOT, CASSAVA AND KOONTI.

Presented to the Section on Physiology and Dietetics, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY A. T. CUZNER, M.D.

GILMORE, FLA.

ARROW-ROOT.

Arrow-root (*Maranta Arundinacea*) is the name the Indians of America gave this plant. In German arrow-root is called *pfeilwurz, pfeil* meaning arrow, and *wurz* meaning root. It is the English name of the botanical genus *maranta*, the type of the endogenous order *Marantacea*, called by Lindley in his "Natural System of Botany" the arrow-root tribe, but altered in his "Vegetable Kingdom" to maranta.

The flowers of this plant are in long, close spike-like panicles with irregular corollas, each having a single perfect stamen with half another. The veins of the leaves run out obliquely from the midrib to the margin. The root is a fleshy corm which when washed, grated and strained, and again repeatedly washed, furnishes the substance so much prized as food for invalids.

The starch extracted from the rhizomes of different *maranta*, and imported into the United States and England, takes the name of the place from which it comes. Thus we have Bermuda arrow-root, East Indian, St. Vincent, Natal, etc., True arrow-root is without doubt the best of all the starch foods to be obtained in the market; hence it is largely adulterated with other and inferior starches, which adulteration is readily detected under the microscope. In England attempts have been made to call every prepared starch arrow-root bearing the slightest resemblance to the true *maranta*. This has failed there owing to the passage of the "Adulteration Act."

It is now understood by public analysts, magistrates, etc., that arrow-root must consist entirely of the starch extracted from the rhizomes of a *maranta*, and any admixture of potato or other starch is regarded as an adulteration. Arrow-root is much more used in England than in the United States, both as ordinary food and as a preparation for the use of invalids and infants. In the former country they prepare what is called white soup by the addition of arrow-root.

The price of arrow-root in England ranges from 13 to 50 cents per pound. It is not much used in the United States. This may be owing to the difficulty of obtaining a pure article, and therefore the true value of arrow-root is not properly appreciated.

It is an excellent material to mix with cow's milk in order to cut up and dilute the excessive proportion of casein. Human milk contains but 1 per cent. of casein, while that of cow's contains 4 per cent.

As a food for young children (and even infants) I prefer arrow-root to barley. Arrow-root should be more largely used in inflammatory diseases of the alimentary canal. It is by far the most palatable of all the different starch preparations.

Figure 1 represents an arrow-root plant, with A, an enlarged drawing of a rhizome. These drawings were made by the writer from a specimen plant of Bermuda arrow-root grown on his own place in Florida.

The drawing of starch cells (Fig. 2), was made from sample of starch obtained from the roots and viewed under the microscope.

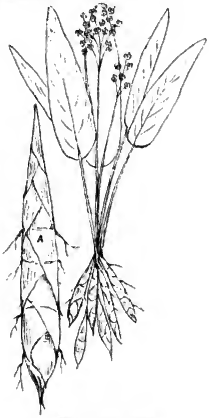


Fig. 1.—Arrow-root.

The plant is easy to cultivate. In fact once planted it is very hard to get rid of, as the smallest piece of root left in the ground multiplies rapidly.

The process of extracting the farina is very simple, and the ordinary housewife finds no difficulty in obtaining the starch from the fresh roots. These are first washed. They are then grated on an ordinary grater into a pan or vessel of water. The pulp is thoroughly stirred in the water in order to separate the starch cells from the fibrous portion. The vessel containing the grated roots is now set aside for a short time to allow the starch cells to settle. These cells being heavier than the fibrous portion, sink to the bottom. The water containing the débris can now be poured off and fresh water added. The starch and fresh water are well mixed together and then set aside for the starch to settle as before. This washing process may be repeated a number of times. The more thoroughly the starch is washed the purer it becomes.

Owing to the limited demand for arrow-root the plant is not cultivated much in Florida. Many of the negroes raise it on their small farms in limited quantities in order to obtain starch for laundry purposes. The supply can, and doubtless will be, always equal to the demand.

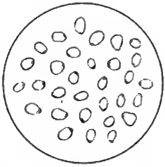


Fig. 2.—Starch cells, Arrow-root.

CASSAVA.

"Cassava" belongs to the family of euphorbiaceæ, and the bitter variety of Brazil (*Manihot utilissima*) is said to contain a large per cent. of hydrocyanic acid.

The sweet variety is indigenous to both Africa and the West Indies. From the last it was introduced into Florida under the name of "cassava" (also aboriginal).

The wild variety was eaten by the South American and Caribbean Indians centuries before this country was discovered by Europeans. In Brazil today mandioca is as much in use as wheat and corn in the United States.

The Indian mode of preparing the roots for food, in vogue nobody knows how many centuries before the first Spaniard or Portuguese came to the country, has not been much improved upon. With a shell or a rude grater made by setting a small sharp stone into a bit of bark, the roots are scraped to a fine pulp. The pulp is then rubbed between stones until all the poisonous juice is squeezed out, and the remaining moisture evaporated by exposure to the fire or hot sun. During the drying it is stirred or broken into coarse grains. This is the farina or mandioca flour, the bread of the rural Brazilians. The Portuguese invented mills for preparing mandioca, not unlike Yankee cider presses. The roots are first washed and then the rind is removed. Then the pieces are held in the hand, in contact with a circular grater. The pulverized material is placed in sacks, several of which are subjected to the action of a screw press, or they are suspended from a pole and weights attached to them. These processes cause the expulsion of the poisonous fluid. The mass thus treated is next beaten fine in a mortar. It is now transferred to open ovens

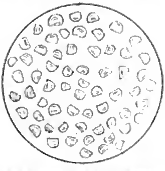


Fig. 3.—Starch cells from Cassava.

and stirred constantly until thoroughly dry. When properly prepared, the farina is very white and beautiful.

Mandioca is said to have medicinal virtues. A poultice made of the grated pulp and moistened with the juice, is considered a cure for abscess. A drop or two of the poisonous juice is administered for tapeworm. But it is principally with the sweet variety or true cassava grown in Florida that the reader is most interested. It is undoubtedly destined to take high rank as a food plant not only on account of its richness in starch, but also from its enormous yield under proper cultivation. It is said to yield 600 bushels per acre, while sweet potatoes (or yams) yield but 500 under the same conditions.

The following is the United States Department of Agriculture analysis:

Water	70.44 per cent.
Ash	.57
Oil and fat	.38
Glucose	.28
Sugar	5.19
Crude fiber	1.19
Nitrogenous bodies	1.03
Starch	21.24

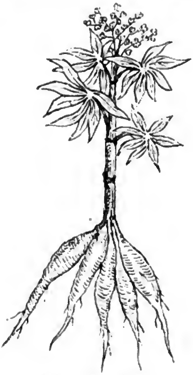


Fig. 4.—Cassava Plant.

Sweet cassava (*Manihot aipi*, Pohl.) abounds in a milky non-poisonous juice. The roots are grated the same as the bitter variety and the juice extracted.

The resulting farina consists largely of broken cell-walls containing a certain quantity of starch. The farina or meal is dried on plates, and is made into cassava cakes. The liquor, which passes away under pressure, contains a large amount of starch. This may be recovered if the liquor is allowed to stand until settled, when the liquid portion can be poured off, and the starch reclaimed. (Fig. 3.)

In the illustration it will be seen that the starch cells are muller-shaped. Tapioca is prepared by heating moistened cassava starch on hot plates.

This process alters the starch cells, causing them to swell up, many of them bursting and agglomerating in small irregular masses. Tapioca is not pure starch. By the process adopted part of the starch is changed into gum; there are also traces of sugar to be found in tapioca.

In the liquor that is poured from the deposited starch much gum and some albumin may be obtained.

The illustration shows the entire plant. It is not propagated either from the root or seed. Pieces of the stalk are planted and from the buds grow the future plants. In this way sugar cane is also propagated.

KOONTI.

This plant (*Zamia intregrifolia*) is a native of South Florida, and is called "Indian Bread-root." In its foliage it bears a resemblance to the palm and tree fern. In affinity it is nearer the latter than the former. Figure 5 represents the appearance of the plant. Its root is the edible portion.

When the poor whites on the east coast are greatly in need of money they go to the woods and dig koonti, finding a ready market for the roots. Indeed, it is the sole occupation of many people. The roots are not cultivated, as they grow wild in great abundance. A very fine quality of starch and tapioca is manufactured from them, which may be found at all times in the Key West market.

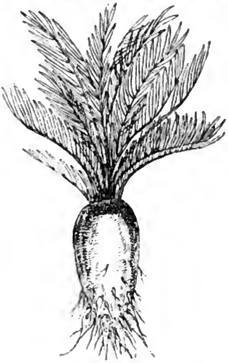


Figure 5.

Figure 6 shows the appearance of the starch cells of koonti. They are muller-shaped, like those of cassava, but smaller. The starch is said to be equal to the best Bermuda arrow-root, and lately its worth as an article of commerce has been fully recognized in Florida. There are a number of factories for its preparation in Southern Florida. A correspondent of the United States Agricultural Department writes: "I ate of a koonti pudding, at Miami, and can say that, as it was there prepared and served, with milk and guava jelly, it was delicious."

The unique industry (in the more limited sense of the word) of the Seminole is the making of the koonti flour. The Indian process is this. The roots are gathered, the earth is washed from them, and they are laid in heaps near the "koonti log." The koonti log, so-called, is the trunk of a lage pine tree, in which a number of holes, about nine inches square at the top, their sides sloping downward to a point, have been cut side by side. Each of these holes is the property of some one of the squaws or children of the camp. For each of the holes, which serve as mortars, a pestle made of some hard wood is furnished.

The first step in the process is to reduce the washed koonti to a kind of pulp by chopping it into small pieces and filling with it one of the mortars, and pounding it with a pestle. The contents of the mortars are then laid upon a small platform; each worker has one. When a sufficient quantity of the root has been pounded, the whole mass is thoroughly saturated with water, in a vessel made of bark. The pulp is then washed in a straining cloth, the starch of the koonti draining into a deer hide suspended below. When the starch has been thoroughly washed from the mass, the latter is thrown away, and the starchy sediment in the water left to macerate. After some days the sediment is taken from the water and spread upon palmetto leaves to dry. When dried, it is a yellowish white flour, ready for use.

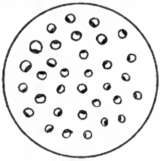


Figure 6.

In the factories this process is substantially followed but with improved appliances. The chief variation being that the koonti starch undergoes several successive macerations, thereby making it purer and whiter than the Indian product.

The koonti bread made by the Indians is of a bright orange color. It is rather insipid, though not unpleasant to the taste. It is made without salt. Its yellow color is due to the fact that the flour has had but one maceration.

A STUDY OF THE DEFORMITIES OF THE JAWS AMONG THE DEGENERATE CLASSES OF EUROPE.

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CHICAGO.

The Twelfth International Medical Congress in Moscow, afforded me a long-sought-for opportunity, not merely to visit Russia, but also to cover nearly all the countries of Europe. In visiting the various cities I made special observations of the degenerates in each of the various institutions for the defective classes. The objective points of interest were the prisons, insane hospitals, schools of idiocy, foundlings' homes, etc. The features of the soldiers, police and cabmen, as well as the citizens themselves, were incidentally noted for the purpose of comparison. These observations, however, were for an entirely different purpose, the object of this paper being to record results as to the deformities of the jaws and teeth of the mature degenerate classes.

In a prison in Athens containing 452 convicts, not a single V or saddle arch was found, although slight irregularities of the teeth due to local causes were observed. Arrest of the lower jaw, however, was the rule, which together with the recession of the forehead gave to the individual an idiotic appearance. Irregularity, in the relation of the upper to the lower jaw due to excessive and arrest of development, was very common. The third molars, upper and lower, were present, but the vault was lower than the average.

In a Greek insane hospital (idiots are here confined with the insane), in Constantinople, of 332 inmates (equally divided as to sex) only one case of V-shaped arch was noted. The vaults were low, upper jaws large and full, but 48 per cent. of the lower jaws arrested, the third molars normally developed.

In an Armenian insane hospital (idiots are here confined with the insane) in Constantinople, of 250 inmates (175 males, 75 females) there was one partial V-shaped arch, the third molars normal, and the lower jaw arrested in 18 per cent. There were many mongoloid faces.

In the Vienna Insane Hospital, among 326 insane and idiots there were 4 partial V and 1 saddle-shaped. The third molars were normally developed in 311 cases.

In a prison in Moscow, with 2,000 convicts (247 of which were in the hospital) there were no contracted jaws nor irregularities of the teeth. The jaws were very large and vaults low. In the Moscow Reform School, 112 boys were ranging from 10 to 18 years. Three had partial V-shaped arches; no saddle-shaped arches. The jaws, as a rule, were large and broad with low vaults.

In a Moscow insane hospital with 400 patients, of which 12 were idiots, no contracted arches were observed. The jaws were large and broad with low vaults.

In the Stockholm Insane Hospital, with 270 patients, 6 V-shaped arches, 12 partial V, 4 semi V, 23 saddle-shaped, 4 partial saddle, 11 excessively developed upper jaws, 3 excessively developed lower jaws, 9 hypertrophy of the alveolar process, 42 missing third molars, 6 missing laterals were noted. Deformities of individual teeth were numerous.

The School of Idiocy of Stockholm with 120 inmates, 80 boys, 40 girls, gave the following results:

BOYS.	GIRLS.
14 normal jaws.	15 normal jaws.
12 V-shaped.	1 V-shaped.
10 partial V-shaped.	5 partial V.
4 semi V-shaped.	5 semi V.
8 saddle-shaped.	8 saddle-shaped.
1 partial saddle.	1 semi saddle.
2 semi saddle.	6 macrocephalic.
12 macrocephalic.	4 microcephalic.
5 microcephalic.	

Thirty-two boys and fourteen girls had hypertrophy of the alveolar process on the upper jaw. One boy, aged 13 years, who was able to take care of himself, had a head thirty-two inches in circumference, one of the largest on record. The prison at Hamburg had 1800 convicts. Large, well-developed jaws were the rule. Asymmetry in development, however, was frequently noticed as well as other stigmata.

The School of Idiocy at Hamburg had 600 children, 396 boys, 204 girls, and gave the following results:

BOYS.	GIRLS.
62 normal jaws.	28 normal jaws.
12 V-shaped.	4 V-shaped.
16 partial V.	7 partial V.
8 semi-V.	3 semi-V.
4 saddle.	1 saddle.
3 partial saddle.	1 partial saddle.

2 semi-saddle.	3 semi-saddle.
46 hypertrophy of alveolar process.	25 hypertrophy of alveolar process.
3 macrocephalic.	5 macrocephalic.
4 microcephalic.	2 microcephalic.

One boy of 13 years had an excessive lower jaw, being one and a half inches beyond normal upper, a most remarkable case.

In the Insane Hospital and School of Idiocy at Amsterdam, there were 1330 insane, 255 idiots. In the insane no contracted arches were found. Vaults were low; 67 had hypertrophy of the alveolar process. No third molars were missing.

IDIOTS.

116 males:	139 females:
1 V-shaped.	1 V-shaped.
3 partial V.	2 partial V.
1 semi-V.	
1 saddle.	

There was hypertrophy of the alveolar process in nineteen. The vaults were low and jaws well developed.

The School of Idiots, Paris, 667 inmates, 500 boys, 167 girls, gave the following results:

BOYS.	GIRLS.
1 V-shaped.	1 V-shaped.
40 partial V-shaped.	6 partial V-shaped.
2 semi-V.	1 semi-V.
2 saddle.	8 saddle.
1 partial saddle.	2 partial saddle.
4 semi-saddle.	1 semi-saddle.
7 hypertrophy of alveolar process.	4 hypertrophy of alveolar process.

The vaults were low.

Having permits to visit the following prisons in Paris, Ci-aprie, Le Depot, Grande Roquette, Mazas, La Santé, St. Pélagie and San Lazan, after examining the convicts in the first four, aggregating 2600, I abandoned the task, since no deformities of the jaws of special value were observed.

In England I examined the following public asylums: 1. Earlswood, Red Hill, Surrey. 2. Darenth School for Children. 3. Darenth School for Adults, Hanwell Hospital for the Insane and the following private institutions: 4. Mrs. Langdon Down. 5. Dr. Shuttleworth. 6. Dr. Beach. A day was spent at the Criminal Insane Hospital, Broadmore. Fully one-half the inmates were so violent that the task was given up. Enough, however, was observed to warrant my stating that fully 80 to 85 per cent. had marked deformities of the jaws and teeth.

Hanwell Hospital for the Insane, Southall, has 2080 patients, mostly of the dependent class, who went insane after maturity; hence the class of deformities which are under discussion were not common. Hypertrophy of the alveolar process and excessive and arrested development of the jaws were, however, frequently noticed. Stigmata of degeneracy of head, face, eyes, ears, body, hands and feet were the rule.

Earlswood Idiot Asylum, Red Hill, Surrey, contained 670, of which 400 were boys and 270 girls.

BOYS.	GIRLS.
31 normal jaws.	24 normal jaws.
108 V-shaped.	67 V-shaped.
69 partial V.	86 partial V.
11 semi-V.	24 semi-V.
19 saddle.	
27 partial saddle.	8 partial saddle.
13 semi-saddle.	23 semi-saddle.
	1 cleft palate.
104 Marked arrest of upper jaw.	87 Marked arrest of upper jaw.
64 marked protrusion of upper jaw.	24 marked protrusion of upper jaw.
11 marked protrusion of lower jaw.	1 marked protrusion of lower jaw.
306 marked arrest of lower jaw.	237 marked arrest of lower jaw.
46 lateral incisors arrested.	30 lateral incisors arrested.
28 lateral incisors lost.	16 lateral incisors lost.
180 third molars lost.	85 third molars lost.
160 showed malnutrition of teeth.	78 showed malnutrition of teeth.

Darenth School for Idiots, Dartford, Kent, had 1000 inmates, 640 boys and 360 girls.

BOYS.	GIRLS.
150 normal jaws.	90 normal jaws.
143 V-shaped.	118 V-shaped.
140 partial V.	80 partial V-shaped.
105 semi-V.	65 semi-V.
35 saddle.	
20 partial saddle.	8 partial saddle.
10 semi-saddle.	20 semi-saddle.
450 marked arrest of upper jaw.	310 marked arrest of upper jaw.
150 marked protrusion of upper jaw.	90 marked protrusion of upper jaw.
23 marked protrusion of lower jaw.	9 marked protrusion of lower jaw.
600 arrest of the lower jaw.	340 arrest of the lower jaw.
68 lateral incisors arrested.	32 lateral incisors arrested.
42 lateral incisors lost.	19 lateral incisors lost.
388 third molars lost.	111 third molars lost.
150 hypertrophy of the upper jaw.	90 hypertrophy of the upper jaw.

Darenth School for Adults (idiots), Dartford, Kent, contained 1050 inmates, 450 males, and 600 females.

MALES.	FEMALES.
60 normal jaws.	40 normal jaws.
105 V-shaped.	177 V-shaped.
93 partial V.	121 partial V.
53 semi V.	79 semi-V.
31 saddle.	
5 partial saddle.	8 partial saddle.
	10 semi-saddle.
295 marked arrest of upper jaw.	436 marked arrest of upper jaw.
162 marked protrusion of the upper jaw.	209 marked protrusion of the upper jaw.
8 marked protrusion of the lower jaw.	17 marked protrusion of the lower jaw.
409 arrest of lower jaw.	580 arrest of lower jaw.
48 lateral incisors arrested.	72 lateral incisors arrested.
37 lateral incisors lost.	62 lateral incisors lost.
442 third molars lost.	597 third molars lost.
58 hypertrophy of upper jaw.	36 hypertrophy of upper jaw.

Of the children, 576 boys and 282 girls showed malnutrition *in utero*. Of the adults, 396 males and 578 females showed malnutrition *in utero*.

Mrs. Langdon Downs' School for Idiots, Normansfield, Hamptonwick, contained 147 inmates, 97 boys and 50 girls.

BOYS.	GIRLS.
12 normal jaws.	5 normal jaws.
36 V-shaped.	10 V-shaped.
20 partial V.	9 partial V.
15 semi-V.	12 semi-V.
9 saddle.	7 saddle.
13 partial saddle.	1 partial saddle.
28 semi-saddle.	16 semi-saddle.
86 arrest upper jaw.	45 arrest upper jaw.
92 third molar missing.	47 third molar missing.
16 lateral incisors missing.	8 lateral incisors missing.
46 teeth showing arrest and grooves.	21 teeth showing arrest and grooves.
19 hypertrophy of alveolar process.	7 hypertrophy of alveolar process.

Of the twelve normal dental arches (males) seven were hypertrophied. Of the five normal dental arches (females) three were hypertrophied.

Dr. Shuttleworth's Private Idiot School, Richmond Hill, had twelve boys and girls. There was one normal jaw, but no laterals. There were two V-shaped, five partial V, one semi-V, two partial saddle, and one semi-saddle shaped jaw. Four had hypertrophy of alveolar process; nine had notched and pitted teeth, and all high vaults. These patients were too young to decide as to the number of third molars, but five had one or both laterals missing.

Dr. Fletcher Beach, Winchester House, Kingston Road, had thirteen patients: Three V-shaped, eight partial V and one semi V-shaped jaw; six hypertrophy of alveolar process; eight had notched and pitted teeth; all high vaults. These patients were also too young to decide as to the number of third molars. Four had one or both laterals missing.

These reports are tabulated in the order in which they were made. They show a gradual increase degeneracy from the examinations made in Greece to those in England. It will also be noticed that the deformities of the jaws and teeth are more numerous among the better classes, such as are shown in the private institutions of Mrs. Langdon Down and Drs. Shuttleworth and Beach, than those of the poorer classes in the public institutions of England.

From examinations previously made in Spain, Italy and Switzerland among the degenerate classes, a very small percentage of deformities of the teeth and jaws were found. As compared with the American born degenerate classes, the percentages are greater than those of the Latin races, and the Slavs, Germans, Austrians, Danes and Dutch, but less from 25 to 30 per cent. than the Swedes and English.

These observations have proven to me what I long ago suspected from my studies of the degenerate classes which have come to America, and which fill our public charitable institutions as well as our prisons, that the higher the intellectuality the greater the degeneracy of the jaws and teeth.

SOCIETY PROCEEDINGS.

The Mitchell District Medical Society of Indiana.

Semi-annual meeting held at West Baden Springs, Dec. 27, 28 and 29, 1897.

The meeting was called to order by Dr. J. Garland Sherrill, the president. After transacting routine business, the first paper, entitled

INJURIES OF THE HEAD,

was read by Dr. John F. Potts of Bloomington, Ind.

After some general observations on the subject of extensive depressed fractures of the skull, Dr. Potts illustrated his point by reciting the case of a man 53 years old, who, Jan. 22, 1897, sustained a fracture of the left parietal and temporal bones, which were crushed in, involving the extremity of the frontal bone and leaving a large opening through which a considerable mass of brain substance protruded. Careful removal of the depressed bone left a very large area of exposed brain substance exuding through the lacerated meninges. The patient recovered consciousness and did fairly well until February 26, when he was seized with a severe chill. On the night of the 27th convulsions came on. March 1 a large mass protruded through the opening. The most prominent part of the swelling was punctured by the exploring needle, without results. The patient's condition was such that incision was deemed necessary to determine the cause of the swelling; a large amount of pus escaped and the convulsions ceased. From this time on the patient advanced in convalescence, finally making good recovery. The left eye was blind and the pupillary reflex presented a yellowish pink color. The patient claimed to have perception of light. Dr. Potts thought injuries of this character, in which the skull was crushed in, although involving one whole side of the head, as this did, and making it necessary to take out an enormous amount of the cranial wall, frequently resulted fatally for the lack of complete removal of depressed bone, regardless of the area involved. He wished to know if any of the members present could account for the loss of sight and the peculiar pupillary reflex in the left eye.

Dr. Pfingst felt satisfied that the injury of the eye was due to embolism in the choroidal vessels, causing inflammation of the vitreous humor.

Dr. Wm. V. Morgan thought septic infection sufficiently explained the condition described. General inflammation of all the structures of the globe, he had no doubt, resulted from infection of the wound in the brain. Dr. Morgan pointed out the difficulty in ordinary cases of severe injuries to the head in determining the presence of fracture of the bone, because of the hard, sharply defined, marginal outline of the site of the injury. In severe contusions of the scalp this sharply defined outline is so abrupt and so hard to the sense of touch as to present all the physical characteristics of depressed fracture. He thinks great danger of confining infectious matter may result from too early suturing of the dura mater. Secondary hemorrhage is another source of danger. He recently had three cases of depressed fracture, with loss of brain substance, in all of whom serious hemorrhage was present, yet recovery was secured by the prompt control of the hemorrhage by packing with iodoform gauze and maintaining ample drainage. In all of these cases small abscesses requiring puncture occurred. He thinks Rolando's fissure the frequent site of hemorrhage. Large clots forming in this fissure require to be turned out and in order that it may be properly exposed it is of the first importance that it should be accurately located externally. His method of locating the fissure of Rolando consists in taking a tape, with which he measures from the most inferior part of the external auditory meatus, in a directly vertical line over the saggital suture, and then placing the lower end of the tape in the nasal notch of the frontal bone, he extends it directly back along the median line, resting the superior end of the tape, which marks the distance from the inferior auditory meatus to the median line, firmly upon the head, the lower end is now swept to the outer border of the malar bone; the upper three-fifths of the tape then lies over Rolando's fissure.

Dr. J. Garland Sherrill considers it the first duty of the surgeon to ascertain the extent and character of the injury, without waiting for symptoms of pressure. Delayed exploration allows time for organic changes to take place in the brain substance, which leads to cicatricial formations, followed by epilepsy, and sometimes even more serious results.

Dr. Charles P. Cook of New Albany reported the case of a man who had been sandbagged and in whom no symptoms of local injury, excepting swelling, existed. The sharp marginal outline of a contused scalp was absent. The nature of the injury was completely masked until symptoms of compression became marked. Operative interference was not permitted and after a tedious and prolonged course of medication the patient made final recovery.

Prof. Wm. V. Morgan cited the rules laid down by Dr. Agnew for determining injuries to the brain when no objective symptoms are present. He then related the important features of a case of laceration of the sigmoid portion of the lateral sinus, in which early operation was done. The patient was a boy who had been kicked in the head by a horse. Foreign matter was carried into the wound. On elevating the depressed bone a frightful hemorrhage occurred, which was controlled by packing with iodoform gauze. On the third day, when the packing was removed the hemorrhage recurred and death seemed imminent. Repacking, however, finally succeeded in arresting it. On the seventh day, when the second packing had been removed, it was found that the lateral sinus had been cut half in two.

Dr. E. P. Easley of New Albany saw a case with Dr. Chas. Cook in which the fracture extended below the ear, involving the base of the occipital bone. The depressed bone was carefully removed, posteriorly below the mastoid and the patient made complete recovery.

Dr. Sherrill thinks shaving the head removes the chief obstacle to the discovery of objective signs of fracture, where the soft parts remain unbroken.

Dr. A. W. Brayton recited Phelps' published list of 300 detailed cases, in nearly all of which symptoms of depression lead to the localization of the site of injury, yet in some cases this is not possible. In a case where no symptoms of external injury existed, the patient died from pressure of a blood clot.

Dr. Sherrill reported an interesting case of death, resulting from cerebral apoplexy, due to atheroma, in which a fall was supposed to have produced concussion with fatal result, when, in fact, loss of consciousness actually preceded the fall.

Dr. Easley of New Albany reported a case where a blow on the head, which produced no external sign of injury, was followed by hemorrhage from the middle meningeal artery, resulting in death.

December 28, 9 a.m.

Dr. Wm. D. Pennington of West Baden read a paper on 'Acute Gastritis." In a majority of such cases the more serious structural changes take place in the pyloric region. Nearly all cases of acute gastritis are due either to microphytic causes, or the presence of insoluble matter or concentrated alcoholic drinks. The differentiation is generally sufficiently easy by the aid of microscopic analysis. Apomorphia and syrup of ipecac are the best emetics in cases of retained insoluble matter. In the treatment of all forms of acute gastritis he esteems saccharated mercury, limiting the patient's diet to skimmed milk as long as any inflammation is present.

Dr. Symon P. Scherer of Indianapolis considered the early employment of lavage most important. This should be repeated at least once per day, with sterile water containing a small quantity of bicarbonate of sodium. At first the stomach should be washed two or three times to insure thorough emptying and cleansing. In cases of ectasia he finds ingesta remaining in the stomach for twenty-four hours. He insists upon the value of lavage in all cases of gastritis and in atonic dyspepsia, with or without gastralgia. He would not, in ordinary cases, allow the patient to use the stomach tube without the presence of a trained nurse or the physician himself.

Dr. J. Garland Sherrill insists upon some discrimination as to the cause of the gastritis. He maintains that the same treatment can not be applied in all cases of microphytic inflammation and those arising from caustic alkalies. In the latter class of cases no food should be introduced into the stomach, feeding should be done entirely per rectum. Lavage in such cases must necessarily aggravate the patient's discomfort. He thinks medicinal treatment in such cases should be limited to fluids that have some local anesthetic or anodyne properties.

Dr. E. P. Easley would not use the tube in acute cases, after once emptying the stomach. He does not doubt the value of repeated lavage in chronic catarrhal gastritis. The apparatus, however, and its mode of use are obstacles to the employment of that method in private practice. Poor people can not afford the apparatus and no untrained person can be trusted to use it.

Prof. Wm. V. Morgan of Indianapolis suggests that a perfectly satisfactory apparatus can be constructed of a plain piece of rubber tubing, by first trimming and then sandpapering the end of it so as to round it and make it perfectly smooth. After carefully washing off any adhering foreign matter that may have become attached to the rubber in the process of smoothing it, attach a common funnel to the other end of the tube. The rubber should be three feet in length with an aperature of one fourth of an inch. In many chronic cases the repeated employment of lavage is of the greatest service.

Dr. Wm. D. Pennington fully endorsed the device of Professor Morgan.

Dr. Adolph Pfingst of Louisville read a paper on "Middle Ear Complications in the Course of Measles." He reported the case of a child in whom sudden high temperature continued for several days, and which had been preceded by very slight discomfort of one ear only. When he was called to the case, both external drumheads were swollen and bulging. Hearing by the watch test = 4 xxx. Hot poultices resulted in the rupture of both membranes and the free dischage of pus. The absence of pain in otitis media, occurring in the course of measles, seems to be as commonly observed as the sudden onset of high temperature. In Bezold's cases many died without having such symptoms as to attract attention to the ear, yet autopsy showed indurated lining of the drum cavity, and in some the ear drum was filled with pus. Dr. Pfingst concurs in the opinion that infection is sometimes carried by the air into the tympanum; at other times tympanic disease is the result of infection by contiguity of structure. He believes that measles rarely runs its course without provoking some form of otitis media, the purulent form being the most frequently observed.

Dr. Ulrich H. Hon of Bloomington called attention to the fact that the eruption of measles is present in all the mucous membranes as well as the skin, and he has no doubt it is present in the middle ear as well as the fauces, where it is always well marked. He has often observed suppurative otitis appearing simultaneously with the decline of the eruption in the skin.

Dr. John F. Barnhill of Indianapolis called attention to the unfortunate failure to recognize the ear complication sufficiently early to prevent suppuration, and such deep seated organic changes as to permanently impair the hearing. The narrow Eustachian canal is early closed by accumulating mucus, which will soon be observed to undergo suppurative changes. He thinks shutting out the circulating current of air nearly always leads to suppuration of the retained mucus in cases of measles.

Dr. Pfingst accepts Dr. Barnhill's explanation of the cause of suppuration.

Dr. John F. Barnhill read a paper on "Extrapulmonary Coughs." Reflex causes are found in impacted cerumen, eczema of the external auditory canal, nasal obstructions, diseases of the pharynx, and a dripping from the vault of the pharynx into the larynx. The ear, nose and pharynx must be explored in all cases, searching for retained matter, inflamed areas, morbid growths, enlargement of the inferior lobes of the tonsils, concretions in the upper lobes of the tonsils, and various conditions of the epiglottis. Sometimes cervical tumors pressing on the vagus excite cough. He related cases due to deformities of the septum narium, with adenoid growths in the posterior nasal spaces; small tumors on the base of the tongue which irritate the crest of the epiglottis; elongated uvula; and some cases of neurotic persons in whom no local morbid conditions could be discovered.

Dr. Dudley S. Reynolds called attention to the occasional development of horny growths in the tonsils, in the posterior wall of the pharynx and on the base of the tongue. He recited the case of a woman, who for a long time attended his clinic at the Hospital College of Medicine, and in whose throat there were a large number of filiform bodies resembling hair. They were about one sixteenth of an inch in diameter, three fourths of an inch long, of symmetric growth, cylindric in form, with sharp-pointed extremities. They presented a dark muddy brownish color. They were removed with great difficulty, and when subjected to microscopic examination, turned out to be veritable horns, having all the characteristics of ordinary horny tissue. These growths resisted the action of caustics, the patient having been the rounds of other clinics for several years. She had a harassing cough. Dr. Reynolds found it very difficult to pull out these growths with the forceps. By seizing a number of them with serrated forceps, and cutting out the matrix with scissors, the growths were exterminated in sections, the second operation being delayed until cicatrization had taken place in the area embraced by the first, and so on to the conclusion. While such cases are not very common, they occur sufficiently often in the course of his practice to deserve mention among the causes of extrapulmonary coughs. They are in no sense of the word like either the milk-tinted masses of fungus disease, nor by any possible mistake in diagnosis to be compared with the ordinary concretions found in the little pouches, or dilated sinuses of the tonsils.

Dr. Scherer reported a case of horny growths occurring in his practice, which he relieved by cutting out the matrix with scissors.

Dr. A. W. Brayton complimented Dr. Reynolds on his description of the growths, but insisted that the disease which produced them is nothing more than a mycosis. Such cases he regards as of sufficiently common occurrence to be considered in the list of causes of extrapulmonary coughs. He referred to an able essay on the subject by Dr. Klein of Indianapolis, presented to the Marion County Medical Society. Dr. Brayton remarked that, although the disease is a distinct mycosis, the action of strong acids is not sufficient to dissolve the growths. He does not doubt that many of them are really horny in formation and believes that the actual cautery is often the best agent for removing them.

Dr. Pfingst thought the massing of the pavement epithelium and the hair like appearance of the growths resulted from the tenacious adherence of the flattened cells.

Dr. Charles P. Cook had observed a peculiar cough, and a morbid sensibility of the throats of beer-drinkers, in some of whom milk-white bodies were present in the tonsils.

Dr. Barnhill thinks the beer drinker almost always exhibits varicose veins at the base of the tongue. He finds them also in neurotic and anemic women, about the period of the menopause. He has, in some cases, been obliged to puncture the varices to give relief to the distressing cough. Varicose veins in the space between the tongue and the epiglottis are most annoying.

Dr. Simon P. Scherer read a paper on

HEART MURMURS.

He thinks the habitual use of digitalis by physicians who do not regard the methods of physical investigation of conditions of the heart, and who divide heart murmurs into two general classes, often leads to grave consequences. The tabular location of normal heart sounds affords the only reliable means of comparison, either in deviation of position with reference to the character of the murmur, or the relations these bear to the systolic and diastolic movement. The comparison of both location and character of murmur in diastole or systole with synchronous pulsations of the carotid, afford in many cases the only means of diagnosis. If weak left ventricle with mitral insufficiency, can be made out, digitalis may be used. Where muscular tonics, however, are required, strophanthus and strychnin are the most reliable agents. In some cases of aortic stenosis, with hypertrophy of the left ventricle and mitral insufficiency, the tincture of aconite, cautiously administered until the apex beat against the chest wall is reduced to a point of relief, great good may be accomplished. In this state of affairs digitalis does harm. In mitral stenosis, digitalis is indicated. In all atonic cases, strophanthus and strychnin; where venous stasis is present, salines and mercury should follow or accompany the use of strophanthus. The prolonged use of strophanthus shows no tendency to cumulative effects. The tincture in five to eight minims doses gives the most uniform results.

Dr. Thomas Eastman of Indianapolis believes that great care and precision of method in diagnosis is essential in the treatment of the various forms of cardiac disease. He would like to emphasize his preference for the tincture of nux vomica or the extract, in all cases where strychnin is indicated. He considers that all other alkaloids of the nux vomica of greater value, are sacrificed by the substitution of strychnin. As a matter of preference he regards the tincture of nux vomica as superior to all other preparations.

Dr. J. Garland Sherrill has seen bad results from the prolonged use of digitalis, which he considers of great power for good or evil. He has known arteritis follow its use.

Dr. Wm. V. Morgan of Indianapolis considers that painstaking care in diagnosis will alone enable the practitioner to exercise sound judgment in the choice of remedial agencies. He reported a case of tuberculous cystitis, with hydronephrosis, which caused hypertrophy of the heart. If the cause can be removed, the compensating dilation of the heart should arouse no anxiety in the search for cardiac remedies.

Dr. G. W. Burton of Mitchell does not think errors of diagnosis easily avoided. In his experience of forty years' practice he has occasionally found it impossible to make an entirely satisfactory diagnosis. He has no confidence in any tincture of digitalis, in fact he questions the value of any preparation, excepting the infusion alone. He has found the tincture of strophanthus an important though powerful and, therefore, dangerous agent. He has known it to do mischief in the hands of inexperienced practitioners. If all the difficulties in diagnosis could be mastered, then he would say cardiac lesions might be treated upon principles entirely satisfactory and rational.

In concluding the discussion, Dr. Scherer called attention to the aggravated dangers of cardiac medication in all forms of hypertrophy complicated with renal disease. As to the question of the best preparation of digitalis, he thinks most practitioners now prefer digitalin. In the choice of preparations of strophanthus he regards the tincture made by Parke, Davis & Co. as the most reliable and, therefore, the best preparation. He does not think the dose should exceed 5 minims to begin with. He thinks the profession in general is inclined to underestimate the value of aconite for diminishing tumultuous and rapid heart action.

Dr. Dudley S. Reynolds of Louisville introduced the subject of

CHOROIDITIS IN CHILDREN.

He maintains that many cases are overlooked in prescribing glasses for the correction of optic defects, and that disastrous results often follow. He contends that choroiditis in children is to be regarded as a manifestation of blood taint, or of that character of defective tissue growth found in mixed races. He is persuaded that very few mulattoes may be found entirely free from choroidal disease. From his limited opportunities of observation, he has reached the conclusion that those persons of mixed blood, of African paternity, with predominating Caucasian blood on the maternal side, never escape choroidal or retinal disease. Dr. Reynolds thinks the axial choroiditis of the aged, like that of infants, may arise from the imprudent exposure of the eyes to prolonged brilliant illumination. The disseminate choroiditis coming on at any period in life, he regards as distinctly characteristic of syphilis. He does not think it is often seen in cases of acquired syphilis, although he does think it sometimes appears late in life in acquired cases. He urges the necessity of having the eyes of every child carefully examined with the ophthalmoscope before permitting it to engage in the duties of school life.

Dr. Ulrich H. Hon of Bloomington expressed great satisfaction with some of the conclusions of the essayist. He recited instances occurring in his own observation where the eyes of school children had been permanently impaired, and in some cases practically lost after the adjustment of glasses by itinerant opticians. He has known many cases where subsequent examination by expert ophthalmic practitioners disclosed irremediable disease of the choroid and retina. He is satisfied that the importance of the matter would justify the expense and trouble incident to a thorough examination of the eyes of all children before going to school.

Dr. J. F. Barnhill of Indianapolis deprecates the too common practice of permitting opticians to adjust glasses, without ever stopping to consider the conditions of the structures within.

Dr. Edmund D. Laughlin of Orleans, feels that something ont to be done to prevent the practice of traveling opticians, often armed with certificates from prominent physicians, adjusting glasses to the eyes of every one who has sufficient money to pay for them. It is clearly the duty of the medical profession to aid both in devising adequate laws for the prevention of such criminal practice, and the enforcement of such laws as we already have. Until some united action on the part of the regular profession is taken, we shall be obliged to continuously witness the disastrous results of allowing itinerant opticians to tinker with the eyes of innocent children, and unsuspecting parents.

Dr. U. H. Hon related the case of a modest, upright young man who had spent several months at some kind of school in Chicago, which issued a diploma or certificate of qualification, and which the young man need as an advertising circular to obtain patients. At first he seemed to think himself able to accomplish great good in supplying glasses to people who appeared to need them. Frequent disasters following his efforts finally discouraged him, and acting upon the advice of Dr. Hon, he confessed to have discovered great mischief in some cases where he had at first thought himself justified in supplying glasses, and finally abandoned the practice and engaged in an honorable business occupation.

Dr. A. W. Brayton of Indianapolis felt the question raised by the essayist concerning the hereditary influence down the maternal line, constituted the most important feature of the essay. He hoped Dr. Reynolds would continue to prosecute his observations, as he felt sure much good, and perhaps some new light, would result from a continuation of these studies. Dr. Reynolds is not alone in these opinions.

Dr. Reynolds, in concluding the discussion, referred to a case in the person of one of the servants at the West Baden Hotel. The patient's mother had but a trace of African blood. His grandmother on his father's side was reputed to be a white woman, while his father was quite black. The patient has extensive diffuse central choroiditis, with perception of light only in one eye, and just sufficient sight in the other to enable him to go about alone. He counts fingers at ten inches only.

Prof. Wm. V. Morgan of Indianopolis, read a paper on

INGUINAL HERNIA.

He regards all the injection methods of treatment with great disfavor. He thinks they should be opposed with unrelenting energy, as they serve but to complicate matters and greatly hinder any treatment that may subsequently become necessary. Naturally all operative procedure should be such as are designed to make complete and secure closure of the abdominal rings through which the hernia passes. He thinks in old hernias no attempt at radical operative procedure should be made until after the protruding intestine has been returned to the abdominal cavity, and remained there sufficiently long to establish tolerance of the reduction, after which two methods of dealing with the sac may be considered, with such modifications as good judgment and individual experience may suggest. Kocher's method has, for its chief feature, a small incision through the aponeurosis over the internal ring, using the finger as a guide, then passing a pair of artery forceps through the opening, and bringing out at the external ring the sac, which is drawn upward and twisted, so as to lie in a furrow outside the aponeurosis, in the direction of the inguinal canal, where it is securely sutured through the fibers of the aponeurosis, external oblique muscle, and the underlying fibers of the external oblique and transversalis, through the hernial sac, and into Poupart's ligament. The sutures bring together the anterior pillars of the external ring to which the sac is fastened. If the sac is very long, that portion which extends below the external ring is cut away. The Czerny method, in addition to high ligation of the sac sutured to the anterior pillars of the external ring, may be extended to include an attachment to Poupart's ligament so as to stretch the peritoneum smoothly over the ring through which the hernia protruded. The difficulties in both this, and other methods, notably Halsted's, lies in the fact that all attempts at creating obstructions against the recurrence of the hernia, by producing thickened and elevated surfaces, create at the same time increased liability of a return of the hernia by protrusion through the depressions on each side of the artificial elevation. One of the menacing difficulties lies in the determination of the best disposition to make of the cord.

Whether it is better to transplant the testicle into the abdominal cavity by placing it within the abdominal walls, adopting Halsted's method of reforming the internal ring, bringing the transversalis fascia, and a few fibers of the transversalis muscle along with a strip from the conjoined tendon, to be stitched across the inner ring firmly to Poupart's ligament, or whether it is best to simply raise or lower the cord, are questions difficult to determine. In many cases it would be far better before operating to have the consent of the patient to the removal of the testicle on that side, and then if removal should not become necessary, no harm or delay would result in the procedure. He shares Marcy's preference for the kangaroo tendon. He considers the following points should be kept in mind both before, and at the time of operating: 1. Attention to surrounding the internal ring by an aponeurotic band. 2. Hooding the cord. 3. Suspension of the testicles. 4. Making the site of internal ring smooth by drawing the neck of the sac across it. With Kocher, he concludes the results to be obtained make it the duty of every physician to advise a radical operation in all cases of inguinal hernia, in which extraordinary size, incarceration or inflammation, or complicating disease of vital organs, or the weakness of extreme old age, do not contraindicate a resort to the knife.

Dr. Thos. Eastman of Indianapolis has used the shotted suture, and silver wire, besides many other materials, and would decidedly prefer the wire in all cases where it is possible to use it; the silver wire suture he thinks, is not as popular with surgeons as it should be. He thinks its antiseptic properties are not sufficiently appreciated and that its more general employment would tend greatly to allay the frequency of stitch abscess.

Dr. Thomas Eastman of Indianapolis read a paper on

THE TECHNIQUE OF MINOR GYNECOLOGY.

In his opinion many of the graver conditions ultimately demanding abdominal section may be so modified, or entirely controlled by timely interference, and by proper regard for technique in the administration of palliative and preventive measures as to establish complete restoration to health. Small lacerations of the cervix, frequently regarded as utterly insignificant, lead finally to the development of cicatricial masses, imprisoning terminal nerves, and causing a great variety of reflex disturbances, sometimes leading to the development of carcinoma. Generally these lacerations are so small and insignificant as not to require suturing, but where fungoid excrescences or excessive irritability develops, the direct application of the mitigated stick of nitrate of silver may be safely, and very beneficially made. He has no doubt that the timely use of such agencies would prevent a very large proportion of those conditions which ultimately lead to hysterectomy. In recent cases of displacement of the uterus, carefully introduced tampons may be found valuable correctives. In most of the inflamed conditions of the uterus, the vaginal douche, properly employed, is capable of accomplishing great good; improperly employed, it is an instrument of evil. Three points seem necessary in the use of the douche: 1. The water should be heated to 120 or 125 degrees. 2. It should be projected directly against the cervix. 3. The quantity should never be less than one and one-half gallons. The Hildebrand douche is best because it enables one to retain for a long time the hot water of the douche in cantact with the inflamed and irritable cervix. The same may be said of ovaritis. Sometimes, in the latter condition, the tampon and electricity should be used. The faradic current is the best form, although galvanism in some cases may be desired. Many of the diseases of the Fallopian tubes, and ovaries, as well as the uterus, may be arrested in their early stages, which, if neglected, ultimately lead to the necessity of abdominal section.

Dr. Simon P. Scherer thinks that it frequently happens that the physician himself does not give sufficiently definite instruction as to the mode of applying the treatment. He recited an instance where he had directed the patient to take an injection for the relief of obstinate constipation. He explained that the fluid to be used should be placed in a bowl, from which it should be conducted into the bowel. Returning he found that the patient had failed in his attempt to take the injection, because he had expected the fluid to flow from the bowl into the bowel through the tube. He reproached himself for not having shown the mechanism of the instrument to be used. It often happens intelligent patients, when ill, exhibit an utter incapacity to reason about such things.

Dr. Wm. V. Morgan entertains no doubt of the value of electricity; the induced current will certainly contract the uterus. Faradic currents with coarse wire will as certainly relieve pain. It should not be forgotten the positive pole of a galvanic battery is the caustic current. As to the value of rest in delaying the development of malignant conditions there can be no question. It has often been observed that cancer of the stomach occurs, by preference, in that portion which secretes hydrochloric acid, and he has no doubt if the acid were present it would prevent the growth of malignant tumor cells.

Dr. John F. Barnhill does not see how the propping up of the inflamed organ is to be maintained without incurring the risk of adhesions to the contiguous parts and organs, and these may become sources of annoyance equally as great as those which have been pointed out as indicating the necessity for operative surgery.

Dr. Eastman concluded the discussion by relating a number of instances of successful palliative and preventive measures employed at the clinic of Professor Gusserow.

The report of the sanitary committee being called for, Dr. Edmund D. Laughlin of Orleans presented the following, which after some discussion was unanimously adopted:

Whereas, An effort is now being made to place before Congress a measure known as the Public Health Bill, formulated by a committee of the American Medical Association at its last annual meeting, and subsequently unanimously approved and indorsed by the American Public Health Association, at the twenty-fifth anniversary meeting, held at Philadelphia in October last; and, in view of the urgent need of such an act by the Congress of the United States, thereby creating an organic law by which the proper officers therein specified may have power to act; therefore, be it

Resolved by the Mitchell District Medical Society, that we do most heartily concur in the effort to secure the necessary legislation upon this subject, and that we will urge our several representatives in Congress to promote the passage of such an act at the earliest possible period.

Resolved, That the secretary be instructed to forward a copy of these resolutions to the representatives in Congress from the district embraced in the territory from which the Mitchell District Medical Society draws its membership.

(Signed) Edmund D. Laughlin, Chairman.

The following papers were read by title and referred for publication: "Diphtheria and Antitoxin," Cort F. Askren; "The Cystoscope in the Diagnosis of Vesical and Renal Diseases," Wm. R. Blue of Louisville; "Horse-shoe Fistula," J. Rawson Pennington of Chicago; "Some Recent Observations in the Use of Diphtheria Antitoxin," Hugh A. Cowing of Muncie, Ind.

Evening Session.

The Society met in the banquet hall, President Sherrill in the chair.

An address entitled, "We Do as We Must," by Dr. Elihu P. Easley of New Albany, based on a consideration of the development of the brain, and the influences of education and environment upon the character and habits of the individual, evincing much erudition, was well delivered. It was discussed by Dr. Wm. V. Morgan, Dr. A. W. Brayton and others. At the conclusion of the discussion, Dr. Wm. D. Pennington announced, on behalf of the Committee of Arrangements, the conclusion of the program, and the banquet was inaugurated by calling upon Dr. Dudley S. Reynolds to act as toast-master. Responses were numerous, and of the usually bright and humorous character. The principal speakers were J. Garland Sherrill, Wm. V. Morgan, Simon P. Scherer, A. W. Brayton, G. W. Burton and Chas. P. Cook.

On motion, a vote of thanks was tendered to the West Baden Springs Company for many courtesies, including a magnificent menu for the banquet, and to Dr. Wm. D. Pennington for his efficient services as chairman of the Committee of Arrangements.

The Society adjourned to meet at West Baden Springs, Ind., July 20, 21 and 22, 1898.

Chicago Academy of Medicine.

Regular Meeting, Dec. 10, 1897.

Dr. A. Lagorio in the Chair.

Dr. C. S. Bacon read a paper entitled

VOMITING OF PREGNANCY.

Various theories to explain vomitus gravidarum have been advanced. A large number are theories of reflex vomiting which assume a peripheral source of irritation in some part of the genital tract. One theory assumes a stretching of the uterine fibers and disturbance of the uterus by the growing egg. G. Hewitt believed that vomiting is due to displacement of the uterus. Others assume irritation in or inflammation of the cervix with erosion of the *os externum*. Horowitz believes that inflammation of the parenchyma of the uterus is the cause of vomiting, a view similar to that held by Veit who finds in endometritis a very important etiologic factor. Tuszkai assumes an irritation of the peritoneal coat of the uterus due to trophic disturbances following the growth of the uterus. No one of these theories can account for all cases of vomitus gravidarum and the beneficent results of treatment founded on these theories can often be explained in some other way than by admitting that such results prove the theory. The theory of Kaltenbach that hyperemesis gravidarum is due to hysteria can not explain all cases, for there are many cases in non-hysteric subjects, but there is no doubt that a psychopathic condition is a very important element in the causation of the disease. The theory of direct vomiting due solely to immediate irritation of the vomiting center by poisons circulating in the blood, or to nutritional changes caused by disturbance in the circulation in the medullary centers, can not be maintained, for reflex action can not be wholly ignored. Hence we must assume at the present time, as the only theory that will explain all the facts and make of vomitus gravidarum a single disease, one that takes account of the condition of the vomiting center and also of the sources of peripheral irritation. We must assume that in two-thirds of all cases of pregnancy there exists an increased irritability of the medullary center due wholly or in part to one or both of these two factors: 1. Nutritional changes resulting from circulatory disturbances. 2. Poisoning from toxic elements circulating in the blood. We must further assume that this abnormally irritable vomiting center is acted upon by afferent impulses sent from one or more of a variety of peripheral sources. Among the most important causes of reflex irritation are an incarcerated, retroflexed uterus, abnormal adhesions of the uterus, pathologic changes in the uterine wall resulting from endometritis, pelvic congestion, constipation, chronic gastritis, etc. To these sources of afferent impulses must be added the psychopathic or hysteric condition which is of especial importance in the more serious cases.

Much can be done to prevent the vomiting of pregnancy, especially the more serious forms, by hygienic management, which consists in caring for eating, bathing, clothing, exercise, sleep, etc., preventing constipation and especially securing a healthful mental condition of the patient.

The indications for treatment of hyperemesis gravidarum are to allay irritability of the nervous centers, combat the neuropathic condition, hysteria, and remove the sources of peripheral irritation. Since the irritability of the medullary centers is due to disturbances of the circulation, and to intoxication, the means for treating this condition are pointed out to us. For maintaining a normal circulation the horizontal position, stimulation of the cutaneous capillary circulation, use of stimulants and vasomotor regulators, and injection of artificial blood serum, are the measures which promise the most. For antagonizing the circulating toxins all measures which stimulate the renal and intestinal emunctories are indicated. The most important of these is also the salt solution. If the psychopathic or hysteric state be a factor in the vomiting it must be combatted by proper management. As in the treatment of hysteria so here it may be necessary to isolate the patient under the care of an experienced nurse and use all mental and moral forces, including suggestion. At the same time all possible sources of peripheral irritation should be discovered and removed. The constipated bowels should be carefully emptied with enemata and massage; a gastric catarrh may be treated with lavage, a displaced uterus replaced and pelvic congestion corrected by ice-bags.

Under this plan of treatment most cases can be controlled that have not advanced to the last stages of starvation. In the extreme cases the subcutaneous injection of large quantities of normal saline solution is proposed because of its effect in improving the circulation, in the elimination of toxins through the clogged emunctories, and supplying two important elements of food, water and chlorids. A case is reported to illustrate the worth of this measure.

Induction of abortion is opposed at all stages. When it is a safe measure to employ it is unnecessary, and in extreme cases it adds greatly to the danger, rarely stops the vomiting and can be substituted by the artificial serum. Three fatal cases are reported where abortion was induced without stopping the vomiting and where the operation may have been a factor in the fatal issue.

DISCUSSION.

Dr. Charles E. Paddock—I believe the cases the Doctor has quoted are instances of hysteria and we can attribute the vomiting more to this condition than any other. In other words, I believe it is more a condition of the mind than it is of any pathologic state. My experience has been that at least 90 per cent. of these cases can be cured by a little suggestion. What I mean by suggestion is the treatment advanced by the Doctor, viz., of putting the patient to bed in the horizontal position, with the assistance of a nurse. The application of nitrate of silver applied to the cervix may do some good; it may at least satisfy the patient. My treatment in these cases has always been along that line, and I find that I can stop the vomiting by such treatment. In some cases I have sent the patient to her mother, or to some relatives in the country, and I have not had a case where the emesis continued after such treatment. Nearly all of the cases I have had of vomiting of pregnancy, unless there was the existence of some pathologic condition, have been cured in a short time, if they were able to go to the places recommended by me. The other cases were pathologic. We may find an erosion of the cervix which can be treated. We may find a malposition of the uterus to be the cause. I have had cases from retroversion and retroflexion, and particularly in incarcerated cases. The treatment of these cases is plain; remove the cause and you remove the trouble. In many instances I believe they are neglected. If they are pathologic we should treat them as such, and remove the cause. I could cite several cases which I have had in my experience.

Dr. J. Howard Slayter—I have nothing further to add to what Dr. Bacon has said, except a word or two with reference to saline injections. In cases of hyperemesis gravidarum, when saline injections are necessary, we find the vitality is much lowered, and therefore these cases are especially liable to infection. In some of them we find a dropsical condition, or one analogous to it, present, and this further adds liability to infection. Again, by the use of saline injections one may, waterlog the part injected and produce an artificial dropsical condition which will be followed by increased tendency toward infection. There are cases of hyperemesis gravidarum that contra-indicate a hysteric origin, for if they were hysteric it seems to me it would be a strange thing to find a genuine organic neuritis present, although occasionally it does happen that organic disease is associated with or complicates one due to functional origin.

Dr. Fenton B. Turck—The paper presented may be considered a fair *résumé* of our knowledge of the subject at the present time. But we had expected from Dr. Bacon's wide experience to have gained more information regarding his personal observations of the etiology of vomiting of pregnancy. If vomiting were the chief phenomenon found in so called vomiting of pregnancy or hyperemesis gravidarum, then the theory of excitation of the vomiting center from the growing ovum may appear satisfactory, but the most prominent factor we have found is the vasomotor disturbance. Associated with the vasomotor disturbance we observe a great amount of congestion of the mesenteric vessels, accompanied with congestion of the vessels of the pelvis. The evidence of pelvic congestion may be noted as one of the early signs of diagnosis of pregnancy, and the symptoms of general vasomotor changes are soon observed. More work is demanded of the heart until an eccentric hypertrophy gradually takes place. We often find great disturbance in circulation, cold hands and feet, surface of the body cold, features drawn and blanched, lowered blood pressure, heart disturbance and sometimes syncope. The universal method of treatment is to place the patient in the prone position and the use of hot water internally, hot coffee, carbonic acid gas, as champagne, etc., subcutaneous injection of normal saline solution; these and all methods which directly or indirectly affect the vasomotor disturbance are most successful. These facts would indicate that the disturbance of the circulation is a most important factor. Where a vasomotor disturbance exists, especially of the abdominal vessels, the motor power of the stomach and intestines is interfered with and a high degree of irritability of the viscera results. If there is retention of material within the stomach and intestines from a lack of motor power, mucus accumulates, especially during the night, together with exfoliated epithelial cells, pharyngeal secretions and other products, such as toxins of bacterial origin, as well as toxins that are excreted into the stomach. These act as irritants sufficient to stimulate the so called vomiting centers.

If there is a marked degree of vasomotor disturbance of the splanchnic area there will result an increased irritability of the stomach whereby the vomiting centers receive more impulses, or are more powerfully stimulated than normally, and we may consider that the vasomotor disturbance also increases the irritability of the nerve centers. Therefore, bromids may sometimes be indicated.

We also find, associated with these cases, a dilatation of the stomach or prolapsus of the organ, due to the fact that the women wearing close fitting and heavy garments about the waist produce these well-known pathologic conditions, such as a pyloric displacement which permits an accumulation within the stomach and sometimes regurgitation from the duodenum and act as an irritant sufficient to produce vomiting.

The third point that I would call attention to associated with congestion of the pelvic viscera and congestion of the mesenteric vessels, is the hypersecretion of the stomach and the involvement of the intestines and colon. The conditions above enumerated, the vasomotor disturbances and the gastro-intestinal disorders, including the colon, are quite sufficient to account for the vomiting that we find in hyperemesis gravidarum. And while I would not object to the term "hysteric," as applied to some of these cases, yet we find these pathologic conditions either existing or coming on during pregnancy, and I would rather ascribe the symptoms to known conditions than attribute the cause to a "neurotic," "neurasthenic" or "hysteric" condition, as these terms throw no light upon the pathology nor give any rational indication for treatment.

In the treatment it is necessary for us to meet the indications, especially the vasomotor disturbances that are found, and this is accomplished by the various methods described in the paper.

I wish to add that hydrotherapeutic measures applied within the stomach are very beneficial in overcoming congestion. It is necessary to use sufficient heat to produce vasomotor stimulation, as in shock, and in many of these cases I have found hot water at 130 degrees F., with the "intra-gastric resuscitator" or a hot water bag introduced into the stomach, of great benefit. This has acted upon the vasomotor disturbance sufficiently to reduce the symptoms of vomiting. Then treatment should be directed to the stomach itself and the intestines. I would emphasize, more than Dr. Bacon has in his paper, the great importance of vasomotor changes that occur in this disease, recognizing them as one of the elements of great importance and which may be found later to be the fundamental pathologic condition found in vomiting of pregnancy.

Dr. **Gustav Fuetterer**—There are three points I would like to touch upon. The Doctor recommends massage for the constipation of pregnant women. Does he recommend this as a rule, and without any fear of producing early uterine contractions? I would like to know how soon after the first hypodermatic injection of saline solution the tetanic attack appeared. I would also like to state that I have used hypodermatic infusions of normal salt solution quite frequently in different conditions and, particularly in one case, I have been able to explain the demonstrated effect to a certain degree by a postmortem examination. It was a case of dilatation of the bladder with chills and high fever. I made an infusion of two quarts of salt solution. The pulse became of much better quality and the heart's action improved considerably. The fever decreased and the patient improved in the next twenty-four hours very materially. Then the septic symptoms appeared again, and two days thereafter the patient died. A postmortem examination was made, some small miliary abscesses in the kidneys found, and I believe that at the time the salt infusion was made infection of the kidneys and general infection had just commenced. In this case it seemed, to me at least, that the infection had been arrested for at least twenty-four or forty-eight hours and then progressed again. As to the replacing of salts and the benefit of introducing them into the system again, I have had some experience along this line with consumptives. I have used these infusions in quite a number of consumptive patients, with gratifying results. Beneficial results were undoubtedly observable even in extreme cases.

Dr. **J. G. Kiernan**—There has been shown a little tendency to criticise Dr. Bacon for his position as to the neuropathic aspect of hyperemesis. Without quibbling about the intermixture of the terms neuropathia, hysteria and neurasthenia, etc., it seems to me, in a strict pathologic sense, not in the sense of gross lesions, neuropathy represents a distinct nosologic condition. If there ever was a condition in which from the standpoint suggested, the subject was illy discussed, so far as hyperemesis is concerned, it is the pregnant condition. It would seem that in popular and general medical opinion a woman must be ill and vomit during pregnancy. There is a psychologic principle underlying suggestion in the treatment of this condition. If the *must* idea was not so much inculcated as it is by popular suggestion in regard to "longings," hyperemesis would be less noted. Furthermore, the therapeutic index is a good one. There is hardly an agent in the materia medica which, when first given by some man of admitted authority, has not produced miraculous effects in pregnancy hyperemesis. As time advances the effects are less. Let any one, for example, read Simpson's use of cerium oxalate of about thirty years ago, and compare his enthusiasm over it with the modified notions there are today, and he will be very much struck with the fact that there is a big difference somewhere between the effects of cerium oxalate then and today, and the most probable explanation of this is along the lines of suggestion. A good many factors of hysteria, pure and simple, enter into hyperemesis. There is many a case, before the complete development of hysteria, in which the patient suffers from hyperemesis. Watson, in his old work on "Practice," mentions fairly typic cases of this kind. In hysteria, in neurasthenia and in neuropathic subjects occurs a condition liable to produce hyperemesis from slight causes of suggestion. Furthermore, it is well known that the mental state of the pregnant woman is peculiarly liable to suggestion.

To discussion of the question whether pregnancy be or be not a physiologic state, a great deal of time might be devoted, but there is not time to discuss that phase of the subject this evening. It does not resemble physiologic states. There are pain and other factors attending it. There are a good many morbid phenomena attending it as well. There is no denying the statement that the hysteric side of the pregnant woman is abnormal. As these women are liable to suggestion, the training should begin early. One person's training would begin with getting rid of the notion that vomiting was a necessary concomitant of the pregnant state.

Dr. Turck spoke of pathologic conditions in these case cases, and his remarks reminded me a good deal of the old pathology of the insane. I can remember the time when physicians used to find lesions in the intestines and elsewhere to account for insanity. Nowadays these are known to be secondary, and not primary conditions. Take the class of women who are given to tying a string around themselves and crowding the viscera down in the pelvis, and abnormal intestinal states that may or may not develop these conditions will result. The fact is that while these abnormal states of displacement among a certain class of women are very common, cases of hyperemesis are rather infrequent.

With regard to the use of saline injections, the fact that under the old theory of their use a number of conditions treated successfully tends to justify their use. There is no doubt that in the conditions of collapse after cholera and allied conditions salines do have an effect.

I agree with Dr. Slayter that in an individual who is water-logged or run down, there exist certain conditions which predispose to infection.

Dr. **William Cuthbertson**—I wish to congratulate Dr. Bacon on the excellent paper he has read tonight, and more especially on the treatment of hyperemesis gravidarum by the hypodermatic use of saline injections. I do not think emesis gravidarum is due to any one cause, and more especially am I inclined to that opinion when I read the numerous remedies that have been suggested for the cure of this affection. Giles of London says he has found that primiparæ who have had dysmenorrhea prior to pregnancy, are more especially liable to emesis gravidarum in the early months of pregnancy, and where emesis gravidarum occurs in the later months of pregnancy it is due to hydrops amni, to twin pregnancy, or to the large size of the child. He also cites cases where retroflexion of the uterus has produced emesis gravidarum, which condition has disappeared on the artificial correction of that state. Also, where emesis gravidarum has occurred in retroflexions of the uterus, that it disappeared when pregnancy has lifted the uterus out of the pelvic cavity. I think E. P. Davis mentions a case of hyperemesis gravidarum that terminated fatally, and at the postmortem examination it was found that a cyst of the cervix had in all probability produced the condition. I must take issue with Dr. Bacon, however, when he condemns unqualifiedly the production of artificial abortion in the treatment of this disease. I think that where it is resorted to sufficiently early it no doubt saves a great many patients. About six years ago I had a case of hyperemesis gravidarum occurring in an extremely neurotic patient. She had also a retroflexion of the uterus, the uterus being bound down in the pelvis by adhesions. Shortly after the occurrence of pregnancy, vomiting began, which soon progressed to such a state as to endanger the life of the patient. After consultation, the induction of abortion was decided on and was accomplished by the introduction of a bougie, and almost immediately after the abortion the vomiting was much less, and finally within a week it ceased altogether.

Another case I would like to relate happened in my practice about twelve years ago. The patient was 35 years of age, became nauseated soon after conception occurred, and vomiting progressed to a dangerous state. After putting the patient to bed and using all the means then in vogue for correction of the trouble, the patient went from bad to worse. After a consultation, the induction of abortion was decided on, and was brought about by the use of a bougie. About forty-eight hours after the introduction of the bougie the patient passed a fetus. Pregnancy had then advanced to about the second month. This happened in my practice in the country and I did not get to the patient until some time after she had passed the fetus, but after the fetus was expelled the vomiting ceased. I thought, in all probability, the placenta had been expelled also, but had been lost sight of. The vomiting ceased for two or three days, and then it began again. I was called and found that she had passed a second fetus, and still no afterbirth. There was no hemorrhage, no elevation of temperature, so I thought the uterus was empty. There was a cessation of vomiting for forty-eight hours when it again recurred. At the end of this time the patient passed a third fetus, and on this occasion the afterbirth came. The vomiting ceased after the third fetus was expelled, and the patient went on to recovery.

I am a great believer in the hypodermatic injection of normal salt solution. In several cases of septic conditions, one case of mine, due to sepsis after emptying the uterus for eclampsia, the hypodermatic injection of normal salt solution reduced the temperature from 104 to about 100 degrees. The patient rallied considerably; there was a more free excretion of urine from the kidneys, but convulsions again set in and the patient died in a state of coma. In a number of cases of surgical shock I have used hypodermatic injections of normal salt solution with beneficial effects in almost every case.

Dr. G. Frank Lydston—I believe Dr. Paddock was correct in stating that in his opinion hyperemesis gravidarum is not consistent with perfect health in a pregnant woman. Dr. Kiernan raised the question as to whether pregnancy was ever a normal condition. Probably not in a civilized woman; rarely at least in the eyes of the obstetric expert. The most salient point that struck me in the discussion was that psychopathy was supposed to be the explanation of the condition in the majority of cases. The element of suggestion, as applied to the cure of such cases is a little far-fetched. In the first place, I believe the report of every serious case of the kind under consideration should be associated with a very careful study of the urine and is incomplete without it. With our modern knowledge of the effects of toxemia dependent upon various toxins, it is not scientific to discuss a subject of this kind without a careful analysis of all possible sources of toxemia, the kidneys constituting the most probable source in cases of this kind. It is the fashion, however, to regard the kidney as being of little importance, providing the urine does not show a solid deposit on boiling, or on the application of nitric acid, or if it is not filled with all kinds of casts and epithelium. Possibly Sir Andrew Clark builded better than he knew, when he spoke of renal inadequacy, a condition in which the kidney may show no organic disease on chemic or microscopic examination of the urine, and yet does its duty so inefficiently that toxemia results. Operations upon the genito-urinary tract sometimes produce fatal results, through disturbances of the nervous system, and may possibly bring about serious results from organic change in the kidney, without any previous evidence of serious renal change. Reflex irritation of uterine origin may do the same thing. It would seem logical to infer that in some cases toxemia resulting from defective bowel elimination bears an important relation to the etiology of hyperemesis gravidarum. It is certainly worthy of thought, and without having made any experiments or observations on this point, I think it would be more logical than the view that these conditions are always of psychopathic origin.

Going back again to the kidney, the effect of irritations of the genito-urinary tract in both male and female, inhibiting the function of the kidney without necessarily the pre-existence of actual renal disease produced reflexly by the irritation, is a point that must be seriously considered. I believe that the principal obstacle to a proper classification has been the almost universal acceptance of the simple view that in all instances the disturbance is due to reflex irritation of uterine origin. The first thing the practitioner does is to look for some source of irritation in the vicinity of the uterus; the next thing he does is to apply something to the cervix, or go through some performance, psychic in its effect, we have heard tonight ostensibly for the purpose of relieving the source of reflex irritation. Cases of hyperemesis gravidarum are too important to attribute to one cause alone. I have no doubt that psychopathy enters largely into the causation in some instances, involving the question of hysteria, but I do not believe it covers them all. A latent neuropathic condition might reasonably be expected to develop and become active as a consequence of pregnancy in certain women. Another class of cases probably would be assigned to renal insufficiency without actual renal disease; another to actual kidney disease. Very likely the renal condition would be regarded by some practitioners as simply a coincidence and its source attributed to reflex uterine irritation instead of the condition being ascribed to its true source, actual renal disease, or toxemia possibly originating in defective bowel elimination. That pelvic disease is responsible for a certain proportion of cases is evidenced by the cases reported by Dr. Cuthbertson and Dr. Paddock, in which reposition of the retroverted uterus relieved the violent and prolonged vomiting. I agree with Dr. Cuthbertson that abortion is to be considered under certain circumstances. I have seen cases in which it seemed to be indicated.

With regard to the treatment recommended by Dr. Bacon for its suggestive effect: taking it for granted that we have toxemia from renal inadequacy or other sources, or admitting that we have toxemia from actual renal disease, is it not possible that the saline injections relieve the irritation of the nervous system by their diuretic and diluent effect rather by modification of the circulation alone? I will grant that much for his method of treatment, but I will grant very little for the cases cited in substantiation of its claims. He cited two cases in evidence, one not his own recovered; the other died of infection and rendered further observation impossible. This patient was infected in two different ways with sepsis and tetanus.

Dr. Bacon (closing the discussion)—In relation to the remarks of Dr. Lydston, I will say that I have given some attention to the renal functions in obstetric diseases, and I believe that the history of the growth of obstetrics is very intimately connected with the growth of our knowledge of kidney diseases. We have had various theories of eclampsia, and there was a time when it seemed only necessary to discover deficient elimination of urea to know positively the cause of eclampsia. When that theory was overthrown we began injecting animals with the urine of eclamptic women, and found eclamptic urine less poisonous than normal urine, and in that way determined that eclampsia is due to the retention in the blood of poisons which should be excreted in the urine. But these experiments have not led to the determination of the cause of eclampsia. I have made some inquiries of one of the physiologic chemists in this city to determine the possibility of making a series of experiments which might be of some real permanent value in determining the rôle played by the xanthin bodies in the pathologic condition of pregnancy. It is already too late to attempt to make the presence of aceton in the urine the key for the explanation of all pathologic conditions of pregnancy, as was done by obstetricians three or four years ago. Now we wish to find out the xanthin bodies. I was assured that it was absolutely impossible at present to obtain any definite information on that subject, and that any observations of the urine made for that purpose are quite worthless. The errors are too great. We talk about determining the elimination of urea by the Doremus test as if that was an exact method, when the slightest consideration will show that our results must be from 10 to 35 per cent. wrong. The time has not arrived to explain the vomiting of pregnancy by examination of urine. Any classification at present has to be based on the facts that are known. The talk about renal disease being the basis of scientific classification of hyperemesis gravidarum is useless. I expressly stated in the paper that I do not believe that hysteria is the only cause of hyperemesis. There are many cases of hyperemesis gravidarum where it is not the cause. But there are many cases where it is an important element as is shown by the curative effects of suggestion. A case described by Chazan is a good example of the value of suggestion in the treatment of these diseases. He was called to a serious case of hyperemesis. The patient had decreased in weight nearly half. She was in a desperate condition. It was thought necessary to perform an abortion, it being quite generally agreed that nothing else could be done, and he succeeded in controlling the patient simply by stating in a positive manner to her that she could control herself by the exercise of her will if she would only do so. She said to him it was quite impossible for her to do it. Then he mentioned to her the grave dangers of abortion, and finally succeeded, by the use of her will, in preventing the vomiting, so that in a week she had perfect control over her disease.

Such a case as this, and there are hundreds of them scattered through the literature, cured suddenly by the use of suggestion and by treatment along that line, shows the importance of the method of this treatment as well as the influence of hysteria in the causation of the disease.

I had expected considerable opposition to my views in regard to the induction of abortion. We do have severe cases which we are not called to see in time, and these are the ones where abortion is to be considered as one of the means that must be employed. The dangers are great indeed. A person in that condition is in great danger of loss of blood and shock. She is in grave danger of infection, and the results given in the literature of the subject do not show that abortion is entitled to consideration, even in the severe cases, and those who advocate it do not recommend it in severe cases.

Dr. Lydston—Do you believe these cases are curable if they are seen early?

Dr. Bacon—I believe if these cases were seen early there would be no fatal cases, unless there is disease associated with hyperemesis, such as cancer of the pylorus or some disease of that kind.

A word or two in regard to the induction of abortion in the cases cited by Dr. Cuthbertson. If abortion is performed it should not be done by a bougie, but by rapid dilatation and clearing of the uterus, because it is important that the case should terminate as soon as possible, and secondly, by the rapid method there is much less danger of infection. In regard to Dr. Slayter's suggestion as to the danger of infection from hypodermatic injections of normal salt solution I admit that there is danger from injections in dropsical conditions, but these conditions are not present here; on the contrary water is absorbed rapidly by the dry tissues.

In reply to the questions of Dr. Fütterer I will say that tetanus developed five or six days after injection in the first case. It is probable that the tetanus infection was from the injection, although no bacilli were found in the tissues, but of course that does not prove very much. How the infection occurred I can not say. The injection of fluid was not made by myself. In regard to massage I will add that I believe it to be a valuable measure in treating constipation in pregnancy, and not dangerous if carefully employed.

I am quite in accord with Dr. Turck as to the importance of vascular changes in pregnancy, but we do not know enough about the subject to make them the sole basis of a classification. I was very much interested in Dr. Kiernan's additions to the pathologic signification of hysteria.

SELECTIONS.

The Management or Patients Before and After Laparotomy.—Dr. Frederick Holme Wiggin, in a paper read before the Hartford Medical Society and the New York Medico-Surgical Society, January, 1898, considered the management of patients before and after laparotomy as follows: In the early days of the decade now drawing to a close, it was generally believed that abdominal operations could not be safely performed outside of hospitals especially constructed for such work; but it is now known that although personal effort and responsibility are increased, it is perfectly safe to do such operations in ordinary houses. It is, therefore, not improbable that in the near future many of these patients will prefer to be operated on at home, and this means that the general practitioner will have a more important part to play in the management of these cases than has been customary in the past. Where circumstances will permit, one week should be devoted to preparing the patient for the operation. This time can be profitably spent in accustoming the patient to the new environment, in examining the heart and lungs, and the condition of the secretory and excretory organs and in thoroughly evacuating the bowel. Early in the week several small doses of calomel and soda should be given daily, for three days, and followed each morning by a saline. On each of the three succeeding mornings a large enema should be administered, consisting of three or four quarts of saline solution. In order that these large enemata shall be properly given the physician should superintend this part of the work, taking care to see that a fountain syringe is used, that it is not more than three feet above the patient, that the solution has a temperature of 100 degrees F., and that the flow is checked from time to time as the patient complains of colic or of intestinal distention. Six hours before the operation the rectum should be given a final washing out with the same solution. The diet during this week should be light and easily digestible, and the patient should be encouraged to drink freely of liquids and to rest as much as possible. Every day, a hot bath (110 degrees F.) should be given for ten minutes, and in the daily ablutions special attention should be paid to the navel and pubic region. The nervous system may be quieted by administering, on alternate nights, a mild hypnotic, such as a combination of sulfonal and chloralamid, and arranging its administration so that a dose is given on the last night before the operation. The skin of the abdomen is prepared for the surgeon by applying a soap poultice over the proposed site of the incision for two hours, and then substituting a compress moistened with weak bichlorid solution. If the patient is a woman, the time selected for the operation should, if possible, be a few days after the cessation of the menstrual flow, and the vagina should be thoroughly douched, first with a solution of boric acid, and afterward, with a 0.5 per cent. formalin solution, or a 1 to 4000 solution of bichlorid. It is better to operate in the early morning than in the afternoon. If the former has been selected, the patient should be given a peptonized milk punch at eleven o'clock the previous evening. The administration of an ounce of liquid peptonoids about two hours before taking the anesthetic stimulates the heart and diminishes the subsequent nausea and vomiting. If the operation is to be done in the afternoon, the peptonized milk punch may be given in the early morning, and the peptonoids at 11 a. m. The patient's body and limbs should be properly protected with clothing during the operation. The furniture of the room should be removed and the windows left open for two or three hours. Then, the woodwork should be wiped off with bichlorid solution, 1 to 1000, and the floor liberally sprinkled with the same solution. The operating table should be about 20 inches wide and thirty high. The following articles should be provided, and, after cleansing and washing with bichlorid solution, should be placed in the room: Several small tables or stands, a few wooden-bottomed chairs, several pitchers and meat platters, four or five basins and a fish-kettle for the instruments. In addition, there should be several gallons of both hot and cold water, sterilized by boiling, and at least a dozen towels sterilized by steaming. For emergency cases it is safer to cover the floor with a sheet wet with bichlorid solution than to stir up the dust of the room by more elaborate preparations.

The anesthetic should be administered before bringing the patient into the operating-room, and if ether is to be employed, it is better to give, subcutaneously, half an hour before, 1/4 grain morphia and 1/100 grain of atropia. A closed ether inhaler allows of the easy and rapid induction of anesthesia and the maintenance of this state with a minimum of the anesthetic. The skin is finally prepared for the operation by a scrubbing with hot water and tincture of green soap, followed by irrigation with sterilized water, ether and alcohol. If the patient be a woman, it should be made an invariable rule to irrigate the vagina and swab it out with gauze. The author strongly favors making the incision through the right or left rectus muscle, instead of through the linea alba. He also believes that leaving a considerable quantity of hot saline solution in the general peritoneal cavity, after irrigation, acts as a stimulant and at same time tends to prevent the formation of intestinal adhesions. In closing the abdominal wound the deep sutures should be placed at least one inch apart, and loosely tied. The edges of the skin may be accurately adjusted by a buried suture of silkworm gut. If, during the operation, the pulse increases twenty or thirty beats, a subcutaneous injection of 1/12 grain of strychnia and 1/100 grain of nitroglycerin should be administered, and repeated as required. If in spite of this treatment the pulse exceeds 150, one or two pints of warm saline solution should be at once introduced into the median cephalic vein. The patient should be put to bed with warm blankets and bottles, and soon after consciousness has been restored, should receive *one* dose of 1/100 grain of atropia and 1/4 grain of morphia. It is not necessary to keep the patient in one position for the first few days. For the first twelve or eighteen hours nothing should be given by mouth but small quantities of warm water. If there is much gastric irritation, it may be relieved by the external application of chloroform to the epigastrium. After this period, a drachm of liquid peptonoids may be given every twenty minutes for four doses, and then small quantities of peptonized milk may be cautiously added, gradually increasing the quantity, and lengthening the interval. Once in twenty-four hours an interval of six hours should be allowed in order to rest the stomach. If there is much intestinal distention, this can be relieved by the introduction of a rectal tube or the nozzle of a syringe, or by massage along the course of the colon. Usually no cathartic need be administered until the third or fourth day, and then small doses of calomel and soda should be given, followed by two or more Seidlitz powders. If, as is usually the case, the temperature is normal by the evening of the fourth day, the patient may be allowed to rapidly resume ordinary diet. The dressings should be changed on the fifth day, and if the sutures are cutting through, they should be removed and the wound supported with strips of adhesive plaster. The complications which may be met with occur in the following order: Concealed hemorrhage, peritonitis, intestinal paresis, intestinal obstruction and stitch abscesses. As soon as concealed hemorrhage is diagnosticated, an intra-venous saline injection should be administered, but it is useless to operate unless the patient shows a reasonable response to stimulants. The onset of peritonitis is usually announced by a steady increase in the frequency of the pulse, and this should be the signal for the prompt evacuation of the bowel by calomel and salines, and by enemata of glycerin and water, or of a saturated solution of sulphate of magnesia. When there is intestinal paresis the stomach should be washed out and salines freely administered. As soon as intestinal obstruction is recognized, the abdomen should be re-opened and the constriction relieved. Stitch abscesses usually announce themselves by the fourth or fifth day. In estimating the patient's condition, the facial expression is of the greatest value.

Keratosis Follicularis (White); "Porcupine Disease."—Dr. J. C. White in the *Boston Medical and Surgical Journal*, November 11, has given a clinical demonstration of this new affection. Both Darier of Paris and Dr. White in 1889 recorded a case, the former naming his as being a *psorospermose folliculaire végétante*. Dr. White used the term keratosis follicularis. The disease appears to be a simple hyperkeratosis, a modification of the process of cornification consisting in heaping up of modified cells in the mouths of the follicles. The clinical appearances were very various, consisting in the beginning of small horny papules, closely resembling the keratosis of lichen pilaris of the arm. From these the process extended into larger semiglobular elevations, hard and becoming somewhat discolored. These were all seated at the mouths of the follicles. By confluence there grew large horny concretions here and there, one-third to one-half inch in height and of about the same diameter. The disease at its highest point of development consisted of conical projecting horns resembling miniature cutaneous horns. In that case the whole surface of the body was largely covered and in certain parts the process was enormously developed. "The case in Paris, which I subsequently saw at the International Congress, had not advanced to this degree, but Darier and other French observers asserted that it was a case of psorospermosis and that the peculiar cells found in the tissues were psorosperms, or coccidiæ, and the name psorospermosis has remained from that time to this. Since then other cases have been observed, but only a very few, in other parts of the world. I do not doubt it was in existence a long time before and it is my opinion that so-called 'porcupine men' (ichthyosis hystrix) were cases of this disease. When I returned from Paris the first patient I saw on entering the clinic was this patient and she presented the same affection. By one who had seen the disease it was immediately recognized by this peculiar appearance of the face. The disease has not advanced very greatly since that time. The whole forehead is occupied by a mass of horny papular growths. Behind her ear the process is much more fully developed. On other parts in the pubic region this process is still more highly developed. There is a little on the wrists. It extends down on the chest in front and in the rear about the same distance. There is a little scattered eruption on the arms and legs. The very peculiar bodies which are found in every one of these papules, large round cells, are not, it has now come to be believed, animal parasites, but are peculiarly modified epithelial cells. It is not a coccidial disease and even Darier has given up that opinion. Although the French name remains, keratosis follicularis is the proper name, because it is a descriptive title and not misleading. We have a case here which is of medium grade, and my first case was this young woman's father. That does not indicate that it is a contagious disease, because this girl was less than a year old when separated from her father and never saw him afterward, nor does it show necessarily a hereditary tendency to this affection, because it is only in one or two other instances that it has affected more than one member of a family."

PRACTICAL NOTES.

Treatment of Gastro-intestinal Catarrh.—Liebreich recommends for the cases in which the diarrhea can not be treated with opiates: Tincture of calumba and tincture of cascarilla, each 10 grams. Twenty drops four or five times a day.—*Semaine Méd.*, January 12.

Tetanus and Trismus Treated with Behring's Serum.—Two more cases successfully treated with Behring's serum are reported in the *Münch. Med. Woch.*, No. 46, 1897. Mortality in tetanus usually varies between 50 and 80 per cent. The mortality in the cases treated with Behring's serum, as recorded to date in literature, is 41.8 per cent., which should encourage its further use.

Test for Aceton in the Urine.—Mallat first distils the urine to a quarter of its original volume, and then applies the principle that a solution of iodin will precipitate iodoform in contact with an alkaline solution of aceton. The amount of aceton is determined by the amount of iodoform precipitated.—*Nouv. Remèdes*, January 8.

Alumnol-Iodin Treatment of Metrorrhagia. — Grammatikati's method of treating catarrhal endometritis with intra-uterine injections of equal parts of tincture of iodin and a 5 per cent. alcoholic solution of alumnol, has been applied by Orlov, with great success, to the obstinate metrorrhagia of the critical period. He reports three cases remarkably improved by two or three injections, and practically cured by ten or twelve.—*Semaine Méd.*, January 12.

Air-Tight Drainage. Ikawitz supplements the ordinary Kocher fenestrated drain tube with another closed tube, with a projecting rim at the junction. The rim fits in with a suture; the drained fluids are collected in the bottle tube; the dressings kept dry, and if the subcutaneous tissue alone is to be drained, the bottle tube with its rim is sufficient without the Kocher part.—*Cbl. f. Chir.*, Dec. 31, 1897.

The Hemostatic Action of Hyposulphite of Lime is announced by Silvestri, who has arrested with it hemorrhage of all kinds, from that accompanying round ulcers to postpartum and endometritic hemorrhage. He administers an average of eight grams a day divided into six powders, and attributes its action to increased coagulability of the blood.—*Semaine Méd.*, January 12.

Treatment of Psoriasis with Arsenious Acid.—Herxheimer confirms his previous announcement in regard to the efficacy of this treatment. He reports ten completely cured; six so improved that they were satisfied with a partial cure, and seven still under treatment. He commences with 0.001 acid. arsenicosum, and increases by the same amount each day until the dose reaches 15 mg. which he continues until complete cure, usually requiring forty-eight days. He states that secondary effects were slight, and that if the affection should recur, he believes that a partial course of treatment would promptly abort it.—*Cbl. f. Chir.*, Dec. 31, 1897.

Auscultation of the Mouth.—Professor Galvagni calls attention to the valuable information to be derived by auscultation of the mouth in regard to incipient tuberculosis, etc. The râles are reflected from the bucco pharyngeal cavity as from a sounding-board. He also notes a peculiar jerky glottic sound, not in the inspiration, but commencing in the pause, attaining its height about the middle of expiration, diminishing and vanishing completely at the commencement of the inspiration. It coincides with the rhythm of the pulse, and has been noticed in several tuberculous patients, and in one case of gastralgia of uterine origin—*Gazzetta degli Osp. e delle Clin.*, December 5.

Iodoform Injections in Tuberculous Lymph Glands.—Hammerschlag has been remarkably successful with intraglandular injections even in the large celled hyperplastic lymph glands on tuberculous subjects, which usually are sent to the surgeon. In the case of well-to do patients he precedes the injections with the general anti-tubercular treatment, climate, baths, etc. After local anesthesia he injects one to two centimeters of the 5 to 10 per cent. iodoform-glycerin emulsion, first on one side and a week later on the other. He states that the result in his six cases was remarkably rapid and satisfactory, the tumors subsiding until not a trace could be seen above the skin and no scars left. In another case he found the results equally fine although the injections were made in the periphery of the gland, and he suggests that others with larger material at their command might experiment whether periglandular injections may not be as efficacious as the intraglandular.—*Deutsche Med. Woch.*, December 23.

Prophylaxis of Nephritis in Scarlet Fever.—Professor Alfaro of Buenos Ayres prevents altogether this dangerous complication of scarlet fever by observing the following precautions: 1. Keep the diuresis abundant with a strict milk diet, plenty of drinks, and cold hydrotherapy in severe cases. 2. Avoid the elimination by the kidneys of any irritating substances either from medication or from the food (avoiding phenol, salicylic acid, antipyrin, acetanilid, etc.). 3. Keep the functions of the skin as active as possible by general friction with fatty substances and tepid bath during desquamation. 4. Keep the mouth, nose and pharynx aseptic with frequent mild antiseptic applications to prevent the introduction of the streptococcus into the general circulation. 5. Avoid sudden or continued exposure to cold air. 6. Use no antipyretics or antiseptics that could possibly affect the kidneys injuriously by elimination or absorption.—*Anales del Circ. méd. Argentino*, October 15.

Tuberculosis of the Ganglia of the Neck.—Cervical scrofulous adenitis is no longer considered a morbid entity, but merely that the scrofulous predisposition induces cellular hyperplasia in ordinary infections more readily. This hyperplasia persists and forms a favorable soil for the development of tuberculosis, which may remain localized a long while. The infection occurs almost always by way of the lymphatics, with caries of the teeth, the tonsils, adenoid vegetations, etc., for the entering point. Tuberculous adenitis develops almost inevitably into the fistulous form; absorption or calcification are extremely rare. There is a form of adenitis which presents the characteristics of tuberculosis, but proves to be non-bacillary. In the suppurated form there may be secondary infection, but pus collections are frequently observed, especially in the adult, which develop rapidly and yet only contain the Koch bacillus. This form of tuberculosis very rarely extends toward the mediastinum; owing to the arrangement of the lymphatics the tendency is toward the axilla. The best treatment is thorough extirpation, a simple operation in non-suppurated cases. Interstitial injections should be reserved for the cases in which an operation is rejected, or counterindicated by the general condition.—R. Petit, *Gaz. Méd. de Liège*, December 23.

Tincture of Myrrh in Diphtheria.—Dr. Ströll, writing in the *Allgemeine Medicinische Central-Zeitung*, very strongly recommends tincture of myrrh in diphtheria. The mixture he uses is composed of tincture of myrrh 4 parts, glycerin 8 parts, and distilled water to 200 parts. This is given very frequently, every hour or even every half hour in the daytime and every two hours at night, infants up to the age of two taking a large teaspoonful (75 minims), older children double that quantity and adults three times as much. This is continued until the membrane has nearly disappeared, when the doses are only given every two hours. After all the membrane has gone the treatment is continued for a couple of days, the interval between the doses being increased to three hours. This is with the view of preventing any recurrence. Usually the fever and lassitude disappear in twenty four hours, so that a child may frequently be found within that time sitting up in bed playing. He says that there does not seem to be any need for local treatment; in the case of older children and adults a gargle containing 0.5 per cent. of resorcin may be employed every hour or oftener in the daytime, and where it is desired the tonsils may be painted every hour with the tincture of myrrh undiluted. Where the larynx is involved Dr. Ströll prescribes the myrrh and glycerin mixture, in an inhaler or spray to be used every half hour. By the employment of this method Dr. Ströll states that he has only lost one case out of eighty and he has collected reports from several other practitioners in various parts of the world who have treated altogether 182 cases with 22 deaths. No mention, however, is made in his own or in the other cases of bacteriologic verification of the diagnoses. The *rationale* of the efficacy of myrrh is supposed by Dr. Ströll to be that this drug increases the phagocytic elements in the tonsils.

Protargol, a New Disinfectant.—The prolific factory of the Bayers at Elberfeld presents a new candidate for disinfectant honors, a compound of silver and protein. This substance was discovered by Dr. Eichengrün, the chemist to the above factory, and is termed "protargol." Dr. Benario of Frankfort has now examined its action and publishes his results in the *Deutsche Medicinische Wochenschrift*. He states that it is an energetic bactericide, a 1 per cent. solution destroying the bacteria of anthrax and enteric fever, as well as pneumococcus, bacterium coli, staphylococcus pyogenes aureus, etc. In experiments made with rats it was found that injections of 2 c.c., of a 1 per cent. solution caused necrosis at the place of the injection, but were not fatal to the animal. An injection of 1 c.c. of a 10 per cent. solution produced an infiltration and total necrosis of the skin, the animal dying in a fortnight. A 20 per cent. solution dropped on the conjunctiva of rabbits produced an increased secretion of the lacrymal glands: an application of pure protargol caused abundant swelling of the eye and the surrounding tissue. But within five days the normal state reappeared, the cornea being clear as before. Injection of a 1 per cent. solution into the urethra caused a slight smarting. The purulent secretion nearly disappeared within a week, and in a fortnight gonococci were no longer discoverable. Professor Neisser of Breslau, who also tried the remedy, stated that he had never before had so good, sure and prompt results in gonorrhea. In surgical practice it was used for the dressing of wounds in about 150 cases. In phlegmonous inflammation, dressings moistened with a 5 per cent. solution were applied; in recent wounds the substance was used in the form of powder. In various ulcerations it was employed as an ointment, while in tonsillitis a 5 per cent. solution applied to the inflamed tonsils proved useful.

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SATURDAY, FEBRUARY 12, 1898.

THE TYPHOID FEVER DEATH RATE.

The death rate from typhoid fever in this country during the census year 1890, was 46.27 per 100,000 persons, but as this is recognized as under-stating the facts from the necessarily imperfect character of the returns, a better idea of the prevalence of this fever may be obtained from the death rate, 53.25 of certain urban populations in which the records were considered to be accurate. The death rate from typhoid fever in England was in that year only 17.9 per 100,000, and that this was not an exceptional year is shown by the last published report of the Registrar-General, which shows only 17.5. Moreover in every 100,000 of our population we recorded about 20 deaths from malarial fevers, a considerable proportion of which was certainly due to the infection of typhoid fever, while the English have no analogous additions to their recorded typhoid rate. These statistics are startling when we consider that far from being an unknown and mysterious epidemic influence, the cause of this fever has been recognized and many of its modes of propagation have been discovered. Thousands die annually of typhoid fever in the United States without disturbing the general equanimity, because the disease is indigenous and the people are accustomed to its ravages; but were an exotic disease causing a similar death rate to be introduced, no effort would be considered too great to effect its suppression. Money would be spent freely to stamp out the pestilence; but money spent freely in giving the people of every city, town and village a pure water for domestic use, would free the country in a great measure from this indigenous scourge. In 1872 Massachusetts led the way in an effort to preserve the purity of her rivers and public water supplies. Other States, as Illinois, Minnesota, New York and New Hampshire followed in her lead, but sanitary progress is slow. For several sessions a bill has been before Congress to prevent the contamination of rivers and other natural water sources in which the citizens of more than one State are interested, but no action has been taken.

Now, however, that attention has been directed to the condition of the Potomac supply of Washington, D. C., it is to be hoped that something may be done. On January 10 last, the Secretary of War was requested to furnish the United States Senate any information in the possession of the War Department in relation to the filtration of this water-supply, together with any suggestions on the subject by the Surgeon-General of the army and the officer in charge of the Washington aqueduct. Surgeon-General STERNBERG reports that as compared with other cities in this country and abroad, the sanitary condition of Washington as judged by the typhoid fever mortality is far from being creditable, and that the relatively low death rate of 53 per 100,000 of the past year (the annual average of the past twenty-two years having been 64) was probably due to the replacement of a number of box privies by running closets, improved drainage of premises and a closer supervision of the milk-supply. As to the Potomac water he states that sanitarians in all parts of the world look upon the typhoid fever mortality of a city as the best index of its sanitary condition. It has been repeatedly demonstrated that the introduction of a pure water-supply or the filtration of a sewage polluted water, together with the introduction of a well devised system of sewers, has a notable effect in diminishing the mortality from this disease. Observations made by bacteriologists in Washington show in the Potomac water the almost constant presence of bacteria, indicating contamination by fecal matters of man or the lower animals. Fecal contamination of a stream, the water of which is used for drinking purposes, is always an indication of possible danger. General STERNBERG considers the construction of filter beds to be the most reliable and practical method of improving the quality of the Potomac supply, but suggests that before entering on an undertaking of such importance and cost, it would be judicious for Congress to appoint a commission to investigate the subject, with authority to visit Europe for the purpose of witnessing the practical workings of filtering basins now in use, and to estimate the cost of a basin suitable for the purification of the Washington supply.

An investigation of this character under Congressional auspices would have an influence which would extend beyond the banks of the Potomac to other streams and sources of supply. It would arouse local authorities to an understanding of the conditions under which typhoid fever prevails, and would suggest the urgency of procuring that which every community should have, a plentiful supply of pure water.

All this shows the need for a Department of Health to act on behalf of the Government in this and other matters pertaining to the public health in the territories and the District of Columbia; to advise the health authorities of the various States and co-ordinate their efforts to reduce the mortality from preventable diseases.

NEW FACTS IN REGARD TO VITALITY.

It is not very long since the current physiologic theories of vitality practically assumed that we knew all about it, or if we did not we soon should, as it was only a special manifestation of physical and chemical laws. Our knowledge of the subject has not contracted any since then, but we have learned facts that cause us to better appreciate its limits, to be a little less presumptuous in our ignorance, and to recognize that in the phenomena of life we have evidence of an agency not correlated with the ordinary forces of nature and not controlled by but controlling or guiding the ordinary recognized laws of matter.

A recently published paper (*Nature*, December 9) by **Horace T. Brown** and **F. Escombe**, recapitulates a number of facts already made known, but neglected, and adds some striking ones that are new and due to the investigations of these authors. It is well known that seeds retain their vitality and germinative power for long, and according to popular belief almost indefinite periods. The condition of the protoplasm in seeds in their inert state has been to some extent a matter of dispute, and while some authorities have held to a theory of continued but minimal vital activity, a sort of intramolecular respiration, others have maintained that metabolism is completely suppressed, and that there is for the time an absolute loss of all the power of internal adjustment to internal relations, which according to **Herbert Spencer** is the essential characteristic of living substances. To test this **Romanes** made a series of experiments which were in their way remarkable; he subjected seeds to a number of tests, placing them in high vacua, of only one-millionth of an atmosphere for periods of fifteen hours. Others still were subjected to the actions of various gases, oxygen, hydrogen, nitrogen, carbon monoxid, carbon dioxid, hydrogen sulphid, aqueous vapor and the vapors of ether and chloroform. Neither the high vacua nor the subsequent exposures for long periods to the above-named gases had much if any effect upon the germinative power of the seeds, though in some of the above conditions ordinary respiration by gas exchange must have been practically abolished. There remained however a possibility of some chemical interaction; it is therefore impossible to say that all metabolic activity was altogether suspended. These experiments though interesting and suggestive are not quite conclusive.

In 1881 **Wartmann** subjected seeds to a temperature of —110 Centigrade (—166 F.) without effect on their vitality, and three years later **DeCandolle** and **Pictet** reported similar experiments, using temperatures of —78 to —120 C. In 1893 **Pictet** claimed to have exposed seeds to nearly —200 C. without effect, and concluded that, as all chemical action is annihilated at —100 C. (—148 F.) vitality must be a special law of nature, like gravitation, and not under the other known laws.

These prior investigations rather detract from the originality of Messrs. **Brown** and **Escombe**'s experiments, but they are not offered as the first of the kind, and are so detailed and complete as to be of especial value and interest. By the slow evaporation of liquified air they succeeded in submitting a number of seeds of common plants, including among them representatives of the Leguminosæ, the Liliaceæ, the Gramminaceæ, etc., air-dried and thus still containing 10 or 12 per cent. of moisture, to a temperature of 183 to 192 C. below zero (—297 to —313 F.) for one hundred and ten consecutive hours. Then they were carefully thawed, the process lasting about fifty hours, and their germinative power was found to be unimpaired; there was no appreciable difference in this respect between the seeds thus treated and the others used in the control experiments.

This result is the more striking since these were all highly organized species of plants, while some of the lower organizations succumb to less extreme temperatures. In 1892, for example, **Dewar** and **McKendrick** found that a temperature of —110 C. for one hour sterilized putrescent substances. This would indicate that certain saprophytic bacteria in their active state were unable to endure low temperatures. What their potential vitality might be in a germinal or non-active condition is perhaps another matter. **DeCandolle**, from his experiments, concluded that protoplasm must be, while still vital, inert in these low temperatures and compared the condition to that of an explosive mixture which is a storage mass of energy though quiescent. **Brown** and **Escombe** also come to the conclusion that there is no conceivable possibility of any metabolic activity existing in the seeds under the conditions in which they placed them, and that we will therefore have to modify our conclusions and definitions of life or vitality. **Herbert Spencer**'s definition already alluded to, which has been perhaps as much a favorite as any—that it is a continuous adjustment of external to internal relations—must be given up as insufficient; it is a definition of vital activity rather than one of life itself. We may have to fall back on **Bichat**'s circular definition, that life is the sum of the influences, whatever they may be, that resist death, as an expression of our ignorance of the real nature of vitality.

There is still another point raised by the English experimenters. In 1871, Sir WILLIAM THOMSON (now better known as Lord KELVIN) made the suggestion that the origin of life on our planet might be due to germs transported from other worlds by meteoric bodies. This was hardly considered seriously at the time, the conditions in space being considered such as to preclude its probability. These recent experiments show that it can not be the temperature of interstellar space that makes the hypothesis an improbable one and give a sort of plausibility to the suggestion. There are of course other factors to be considered, but these recent developments add a new interest to speculation, while they deepen rather than clear up the mystery of life.

PROTECTION FOR THE RED CROSS.

Senate Bill 1913, "To protect the insignia and the name of the Red Cross" passed the Senate Jan. 6, 1898 and was referred to the Committee on the Judiciary by the House of Representatives on the following day. This seems at first sight like a praiseworthy bill entitled to the support of every humane and patriotic legislator, but when we come to scan it and the arguments in its behalf we find that there are in existence two RED CROSSES, one of which is official and has asked for no protection, while the other in petitioning for protection speaks as if speaking for both and as if authorized to do so. The first is the Red Cross, the hospital flag and the badge of hospital corps neutrality of all the nations that have accepted the articles of the Geneva treaty of 1864. The 7th article of this treaty provides that hospitals and ambulances shall carry in addition to the flag of their nation a distinctive and uniform flag having a red cross on a white ground; and that their staff shall wear an arm badge of the same colors, the delivery of the brassard for the arm to be made by the military authorities. The 8th article provides that the details concerned in carrying the other articles into effect shall be left to the Commanders of armies. This is the only Red Cross which our Government recognized in accepting the treaty of Geneva, as it is the only Red Cross mentioned in the articles.

The sympathies and energies of those who were instrumental in bringing about this treaty led them to suggest the formation in each country of an association to gather supplies for the wounded and even to take the field in aid of the Army Medical Department in case of need, these national associations to be united into an International Association for systematic co-operation in great wars. Accordingly this International Association was formed, and it *assumed* the Red Cross of the treaty as its flag and insignia, although no article of the treaty authorized the assumption, but on the contrary articles 7 and 8 indicate the military authority or War Office as the only power competent to authorize the wearing of the Red Cross neutrality brassard or the hoisting of the official hospital flag. Nevertheless the United States branch of this International Association, incorporated under the laws of the District of Columbia as the American National Red Cross asks Congress to make it unlawful for any person or association of persons to wear or display the sign of the Red Cross without permission from the American National Red Cross, for the purpose of collecting, soliciting or receiving money or material or who shall by the use of said symbol or name of the American National Red Cross do or attempt to do similar work to that of the American National Red Cross, without permission from that organization.

We have four prominent objections to the passage of this bill. 1. As a general principle no restraint should be imposed on the charity or humanity of individuals, states or nations. 2. The bill fails to distinguish between the Red Cross of the treaty and the same cross assumed as the insignia of a local organization. Indeed from the ingenious manner in which both are mixed up in the preamble of the bill, it would require a reference to the highest court to determine whether on its passage the U. S. Army and State troops could continue to wear their badge of neutralization, unless with permission of the American National Red Cross. Moreover as there is officially only one Red Cross, that of the Geneva treaty, can Congress overlook the provisions of the treaty and authorize an Association to distribute its specific and sacred badge at its pleasure? 3. The bill fails to protect the Red Cross as there is nothing in it to prevent anyone from placing Red Cross brands of tobacco or whisky, etc., on the market. 4. The scope of the bill is more extensive than its title. It is a bill to extend and exemplify the powers of an association, incorporated under the laws of the District of Columbia, by recognizing it as a federal institution, the only one through which voluntary aid could reach the sick or wounded of the Army, because the only one by whom or through whom could be worn a red cross indistinguishable in form, color, size and position from the Red Cross of the Geneva treaty. If the citizens of Massachusetts, Louisiana, Illinois, or any other State desired in time of war to come to the aid of the Medical Department of the Army by collecting and forwarding supplies, or by outfitting a volunteer corps for field or hospital service, they could under existing conditions obtain safety for their supplies and neutrality for their personnel from the military authority competent to grant the use of the Red Cross under the articles of the Geneva treaty, but under the terms of this bill they could do nothing without first touching their cap to the then chief of the American National Red Cross.

If any bill to protect the Red Cross is passed by the Congress of the United States, it should be one to protect the Red Cross of the Geneva treaty and to prevent its use in any way except under the terms of articles 7 and 8 of the said treaty. Miss CLARA BARTON, the President of the American National Red Cross, stands high in the esteem of the U. S. Military Surgeons for her efforts to secure the formal acceptance of the Geneva treaty by the U. S. Government, and in times of calamity her name becomes a household word throughout the country. The aid given under her superintendence at various times, as during the forest fires in Michigan in 1881, the earthquake in South Carolina in 1886, the Johnstown inundation of 1889 and the tidal wave of 1893 shows that the work of the American National Red Cross can be efficiently performed without such legislation as will compell all aid and assistance contributed by U. S. citizens to be registered under its stamp and seal.

THE HUNT MEMORIAL.

The dedication of the Hunt Memorial Society Hall at Hartford, Conn., was the occasion of more than local interest. Dr. HUNT had been a leading physician for nearly half a century, and his family, to commemorate his name, offered the local medical society a building for a library, museum, laboratory and lecture room. The society purchased the ground and a thirty thousand dollar building has been erected for this purpose. The dedication was marked by a notable address from President GILLMAN of Johns Hopkins University of Baltimore. The building is especially adapted for social and scientific work. Large cosy parlors and sitting rooms, with a kitchen and dining room, after the fashion of a modern club are provided. Other rooms are fitted for laboratory and chemic research and the foundation of a large library has already begun. Rooms for research, writing and consultation of books and periodicals are large and well arranged. One large lecture hall and several smaller rooms for society meetings are provided, and altogether this building is most admirably adapted as a home and resort for men. One of the peculiarities which sounds strangely is the provision for a free dispensary. A set of rooms has been fixed up for the work of a dispensary under the care and control of the society. In a city of seventy thousand inhabitants with two hospitals and two dispensaries, to open another for free charity, or to combine those in operation, seems out of harmony with the sentiment of the best medical experience of the present. Fortunately the dispensary is only a project and not yet organized, and probably will never come into practical existence. Outside of great medical centers this is the first building for this special purpose which has been erected. In almost any town of any size, secret and other societies, with clubs of every description, have houses and special buildings as permanent homes, while medical societies are practically houseless. There are probably not more than a dozen buildings owned and occupied by medical societies in the country. Physicians often urge the endowment of hospitals and dispensaries, when they should ask for a society home, which would be a greater charity.

One of the great wants of the day is a closer union of medical men in their work and practical every-day life. In large towns and cities a medical club house with library, laboratory and social rooms are indispensable for this purpose. The Hunt Memorial Hall in Hartford is a model of what should be erected in every large town and city of the land. It is understood that further endowments will be made to this memorial building so that the expense of sustaining this house will be nominal to all its members. The time has evidently come for a change in the organization of free dispensaries and hospitals, and the rush of physicians to give free services, both pauperizing themselves and their patrons. If the same energy displayed in this direction was turned to provide society homes and libraries, an immense advance would be noticeable in the practice of medicine. Every society of thirty or forty members should have a medical club house, with every facility for scientific and social recreation. Young men of limited means could find here libraries and opportunities for study invaluable to them. The great number of periodicals could be gathered and kept on file and books from all sources would accumulate, and valuable libraries now lost could be kept together on the death of the owner. The periodicals and books together with everything pertaining to medical progress would accumulate here, making it a center of increasing interest to all medical men. Not the least of these privileges would be the social part, and the lecture room. If men of other vocations can build expensive club and society houses, and receive permanent good from such associations, why should physicians not do the same? It would seem that medical society homes were indispensable for all practitioners, even more so than homes for men in trade or other professions. The example of the Hartford society in their Hunt memorial home, should be followed by every medical society in towns and cities where the profession can gather without much loss of time and effort.

NOTIFICATION OF CONTAGIOUS DISEASES.

"It shall be the duty of every physician called to attend a person sick or suspected to be sick with cholera, yellow fever, smallpox, diphtheria, scarlet fever, measles, whooping cough, typhoid fever, typhus fever and tuberculosis of respiratory organs, within twelve hours thereafter to report the name and residence of such person to the board of health or its proper officer within whose jurisdiction such person is found." etc.

Such is the substance of a resolution recently passed by the Department of Health of Cincinnati, and it is the expressed intention of the efficient health officer that the resolution shall be carried out as far as possible. This move on the part of the department is no doubt a beneficial one to the general public, but we should stop for a moment and consider what part the doctor in attendance is to play in this extended line of prophylaxis. He must fill out the printed postal cards and send them to the department, or otherwise notify it, under penalty of a fine or imprisonment for failing so to do, and the remuneration he receives is his inward satisfaction and relief in having complied with the rules laid down by the political heads of the municipal government. He receives no compensation whatever and whose fault is it but his own? Does anyone ever see a lawyer doing any of this charity work for the good of the general public? Was a politician ever known to fill any office in a health department and gather these reports and not be paid for doing so? Is not the doctor, if fortunate enough to have property, taxed the same as other people, does he not have to pay rent and in several cities register or procure a license to practice, which in no instance is made a present to him by the State or city, and has it not been decided by some courts that man (even a physician) is entitled to compensation for the work he does or the services he renders, and hence why should he not be compensated for his share of the enforcement of this regulation? This may be regarded by some as a too mercenary or business-like view of the practice of medicine, but in these times when the clientelage of the physician almost invariably pay everyone else before they pay him, when the courts in many instances deny the physician his just dues, when the public expects the doctor to contribute the best years of his life (made short by the many hardships and exposures he is compelled to endure) to the care and treatment of many cases of charity who are unable to compensate him in any degree, or to the army of deadbeats who resort to every means to avoid paying their bills, it is time that the doctor took a little more business-like view of his calling. He should value the years he has spent in the most laborious efforts to perfect himself in his art, the thousands of dollars he has expended in education, library, instruments, etc., and then profit by the examples of thousands of practitioners who have lived long and noble lives in caring for the sick, and at the close of their life of hardship, exposure, anxiety, study and privation, have been unable to save enough to leave their widow or family in circumstances little short of penury.

There can be no valid reason why a moderate fee should not be allowed for such reports when made by a physician. The rich and affluent need not demand or receive it, if they do not so choose, but there are physicians to whom even this stipend would be welcome and it certainly is only just that the worker should receive his wage.

CORRESPONDENCE.

Appendicitis: Rejoinder to Dr. Carstens.

RICHMOND, IND., Jan. 23, 1898.

To the Editor:—If Dr. Carstens will read carefully, he will see that I am not opposing operative methods, as I said in two of these cases I had been called to operate and found one case dying, and a second so much improved that I declined to operate; and in two other cases, not included in the eight reported, they refused operation, and a third not included recovered. Hence it is unfair to represent me as being opposed to operation (I am not). But in a careful study of the disease and from reports of surgeons I am still of opinion that many cases under judicious treatment would recover and avoid the knife. I have, as I reported, made postmortem examinations whenever possible, to study the nature and progress of the disease, and am not wholly a novice in operation. . . . My experience teaches me to conserve human life on both lines, viz., by operation and no operation. Hence it is a question of enlightened judgment and not by the *ipse dixit* of him who may be lacking in the careful study of cases. He says: "The article refutes itself." Now, if the Doctor had read carefully . . that I was called to operate in two of the cases, he would not have said I was opposing operation and advising more conservative treatment. I do not claim that some of these cases were judiciously treated, or treated at all for this trouble, and that is a reason why they died. It does not change the facts in the case. The statement was made that "the ambitious who are inexperienced" operate when a patient is *convalescing* (which was not true in any of these cases), "but the experienced surgeon will postpone an operation and urge an operation in the interval." Then he goes on to say: "However, all experienced surgeons urge immediate operation upon every case, claiming that the mortality will not be more than 2 to 5 per cent." I answer: They do not, and Dr. Carstens is not authorized to represent the surgical profession so dogmatically, as I can show to be so from records coming from attainable sources and by accomplished surgeons who have been in the field perhaps longer than my reviewer. . . . As to recurrent attacks, it is not true in the cases recovered in this list so far; no case has had a recurrent attack and I am as well advised as to this fact as is Dr. Carstens, but I answer, that it is not true that recurrence occurs as often as appears in the statement; and especially when we remember that the troubles which occur in this region of the body have not been accurately diagnosed in the past, or even in the present day, and there is room for careful observation all along this line of diagnosis. Again, Dr. Carstens is at fault when he says: "If the eight cases had been promptly operated upon the (*first day*) seven at least would have recovered, and not been in danger of subsequent attacks." Now, the Doctor assumes that but one might have died, and furthermore he is at variance with all authority when he says operate on the first day of the disease. It will take the first day at least to be sure of your diagnosis. He evidences too great a confidence in his own methods of diagnosis and too vivid a confidence in what the knife can accomplish to justify me in believing he is a careful or methodic student of cases by a careful analysis and classification of symptoms in such cases;

and if I am correct in this conclusion, I am also correct in the conclusion that he is only proving, just what I have hinted at, that a more conservative study and treatment of these cases would save many lives which are not saved by the knife. One of these cases I reported, in which I was called to operate, proved that if he had been operated upon at any period of his recurrent attack, it would have been useless, as the changes produced in the tissues, revealed by postmortem, showed that no operation could have saved him.

Again, I refer Dr. Carstens to a controversy between Dr. Terry of Utica, N. Y. (in the *Medical Times*), and Dr. R. P. Morris of New York, also a warm advocate of the knife and quoted as an authority upon appendicitis.

The case is not settled by Dr. Carstens, nor by any one observer, in favor of the knife, no matter how strongly he states it, yet we believe it will come to be settled, as many other surgical questions are being settled, by a more careful diagnosis and a more careful, conservative treatment, which does not necessarily exclude the operative method, when safely or judiciously applied. My conviction is still, that when a larger number of cases with careful diagnosis and treatment, promptly begun, with a rigid rule of quiet in bed, the statistics will still be largely on the side of recovery by conservative treatment, and I would use this treatment, even with knife in hand, and would operate if I became satisfied I ought. And a man should have the courage of his convictions on either side in harmony with all facts known to exist bearing on the case. I do not here enter into any discussion of the pathology but adhere to my first position, that we are coming to the time when a more enlightened and conservative treatment will yet relegate the surgeon's knife in this and other abdominal troubles to the shelf. I have indubitable proof, in my own experience as compared with other surgeons, that the knife, which was supposed to be the only resort to save life, has failed and patients have recovered without it, and continue to live and enjoy good health.

Comments: *Obiter dicta* in practice are opinions expressed by those who think they know, on points which do not necessarily arise or exist in cases under consideration.

Dicta are to be regarded as of but little authority, on account of the manner or form in which they are presented, and are often given without much or sufficient reflection and without sufficient data. If, says Huston, "general *dicta* in cases turning on special circumstances are to be considered as establishing rule or law, nothing is yet settled, or can long be settled." It has also been said to be a great misfortune that *dicta* are cited (opinions) and then, when gone into print, are taken as absolute propositions. This may be the position our reviewer is in, and yet his *dictum* does not go. It was not supposed that a few cases would settle a rule of statistics, but only as going to make up a large number which guide to the truth.

The facts in the cases reported clearly show that the five cases which recovered were those who received a careful, discriminating treatment, not all by the writer, and those who were lost neither had judicious nor safe treatment, but refused the aid of surgery when offered them, and this puts an entirely different view than the one supplied by Dr. Carstens.

I am not alone among medical men who have grown old in experience who are taking the same view, that the *obiter dicta* of the present generation of younger surgeons does not yet settle questions, but that the statistics which will prove a rule of action to the surgeon are not yet complete and will not be till more cases and more time has been taken to determine them. I only expressed a personal judgment drawn from a large private and hospital experience which a large body of men in the profession now entertain, that the knife has been too handy an instrument, and we want a more careful and methodic study of cases before we rush in "where angels might fear to tread."

Thalamon, one of the younger men in medicine and surgery, has given us a masterly résumé of the subject and in it says, "and moreover, if we take all the forms of appendicitis as they come, without making any distinction, we know with certainty that in 90 per cent. the disease gets well without the aid of the surgeon, which shows that as far as the life of the patient is concerned the immediate progress is not so grave and that one may safely wait." Again, he says: "No precise time can be fixed for an early operation; the limit may vary from the third to the fifteenth day." Carstens says the first day, and there is but one case reported as being operated on in the first twenty-four hours, or first day. This case recovered, and yet how does anybody know that in the progress of the case recovery might not have occurred. I would be glad to know in how many cases which recover the operation was indispensable to save the life of the patient. Can any man answer? "The chances," says Thalamon, "for life offered by laparotomy are not very great and it is probable that the chances are *nil* after the fifth day." Here we must draw a clear distinction between the circumscribed and general peritonitis or hyperacute forms and those not so. The rule of Treves was "not to operate before the fifth day." The question recurs, when is the opportune time and who shall decide but the surgeon who has the case? Evidently Dr. Carstens is one of those who believes in immediate operation or early operation, and thus sets up a standard of his own. One thing now to be noticed is the statement that the operative measure is attended by 2 to 5 per cent. mortality, which is much larger than this. When facts are studied on both sides of the question, viz., statistics of operations and those of non-operative cases, they will show from 10 to 15 per cent. of recoveries after operation, while the results of carefully conducted treatment show a better result, which leads Thalamon to say, "that naturally there has been a reaction against this zeal for use of the knife." And to the apparently triumphant statistics of the American surgeons, physicians have replied by statistics more emphatic and decisive (49 to 51). Yet we are still to remember that statistics will not finally *settle* this question, but judgment, skill in diagnosis, effective control of patient and control of pain in each case, judicious use of remedies in control of inflammation, so-called peritoneal.

R. E. HAUGHTON, M.D.

Proportion of Physicians to Population.

SYKESVILLE, MD., Jan. 24, 1898.

To the Editor:—The statistics quoted in the JOURNAL of January 22 (p. 231) from "Hirschwald's Medical Directory" furnish a good refutation of the reckless statements so often made by careless writers in American medical journals concerning the great disproportion in the number of physicians to population in this and other countries. I have thought it might be of interest to give a comparative statement of the number of physicians to the population in a few of the large cities in the United States and in the German Empire. The figures for the former are taken from "Flint's Medical and Surgical Directory" for 1897 and the "New York World Almanac" for 1897 and 1898, and those for Germany from the work mentioned above. The statistics are as follows: United States: New York, 1 physician to 650 of population; Philadelphia, 1 physician to 661 of population; Chicago, 1 physician to 840 of population; Baltimore, 1 physician to 676 of population. German Empire: Berlin, 1 physician to 780 of population; Breslau, 1 physician to 864 of population; Munich, 1 physician to 798 of population; Frankfort, 1 physician to 795 of population. For the entire German Empire, 1 physician to 2143 of population. For the Kingdom of Prussia, 1 physician to 2184 of population. The population of New York is as estimated on Jan. 1, 1897; that of the other American cities as estimated

Jan. 1, 1898. The German statistics of population are said to be from the latest official census.

It is well known that in American registers of physicians there are many entries of persons who may have the degree of M.D., but who do not practice medicine. Others have the degree of Ph.D., and still others are called Doctor or "Doc" by courtesy. I have gone over the list purporting to give the names of physicians in Baltimore, and find that 4 per cent. have no right there. They are either Ph.D.'s or M.D.'s who have devoted themselves to other pursuits than the practice of medicine. By excluding this 4 per cent. of non-practicing doctors, I find that in Baltimore the proportion of physicians to population is 1 to 704, not very much in excess of the proportion in Berlin. The 4 per cent. eliminated does not include homeopaths, herb doctors, and all other quacks, nor those who have died within the year. I imagine the German statistics only give those who are legally entitled to practice.

There is another point to which I want to call attention. The belief is general in this country that in Germany, and especially in Prussia, no one is allowed to practice medicine without having passed the so-called "Staats-examen." Now, I have good reasons for doubting this, but it may be true. If true, there ought to be some way of finding out beyond question that it is so. Have all the 14,582 physicians practicing in Prussia, or the 2148 practicing in Berlin, passed the Staats-examen? Or, are there persons practicing medicine in Prussia or in Berlin, who have not passed this Staats-examen, which is constantly held up to us for our admiration and imitation? and if the answer to the last question is affirmative, as I believe it will be, where does the great superiority of the Prussian system come in? Very truly yours,

George H. Rohe, M.D.

A Genuine Department of Health versus Psychic Sanitary Measures; Which?

Chicago, Feb. 7, 1898.

To the Editor:—I was curious to learn the purport and meaning of the "Caffery Bill," pertaining to legislation for the hygienic welfare of the people of this county and, after reading the same as published in the Journal (February 5, pages 330-331), I can say that I am utterly opposed to this substitute bill.

To my mind this substitute bill is not what the medical profession nor the great majority of the people of this country desire. It has very little semblance looking toward the establishment of a genuine department of health as a separate branch of our government, and I will venture the prophecy that the views of 90 per cent. of the members of the medical profession throughout the United States are not in accord with this proposed substitute bill which has been suggested to take the place of the bill that has been carefully prepared by the special committee of the American Medical Association and which was introduced into the Senate by Senator Spooner of Wisconsin on January 27 last, and is known as Senate Bill 3433.

There may be mugwump bacilli or psychic bacilli that science and sanitarians will have to contend with in the far distant future, but for the present generation at least, we are entitled to, and should be afforded the most ideal and thorough scientific department of health that it is possible to contemplate, exactly on the theory that when any person or any of our national legislators of either house of Congress, or within their domestic fireside are stricken with disease, they desire the best medical skill obtainable.

We are admonished that, presumably within a week or two, this substitute bill known as the Caffery bill will be introduced into the House, and our influence and work must necessarily, for some time at least, now be exerted with representatives in Congress. Shall this be done?

Before closing, I might with propriety propound this query also (which is not intended so much for the aggrandizement of our profession as some might be led to believe).

Would it not be well for the President's cabinet to be dignified by the acquisition of a scholarly and thoroughly scientific medical secretary exactly on the same principle as the presidential family is composed of gentlemen versed in diplomacy in matters of state, finance, the judiciary, the science and art of war, etc.

Let us have a department of health, therefore, as has frequently been outlined in the Journal, on the same theory that if we want a spade, a spade will be provided for us and not a spatula, or if we ask for a stick of wood that a wooden toothpick will not be substituted. Very sincerely yours,

Liston H. Montgomery, M.D.

Method of Examination of Urine.

Omaha, Neb., Feb. 3, 1898.

To the Editor:—Apropos of the ingenious method for the detection of casts described by Drs. Haines and Skinner in the Journal of January 29, it may be of interest to describe the method which has been in use in my laboratory for the past few months. I depend entirely on the centrifugal method and use only tubes containing at least 15 c.c. Both tubes are filled to the 15 c.c. mark with the freshest possible specimen of urine and centrifugalized at from 1800 to 2500 revolutions per minute for three minutes; then at least 10 c.c. are withdrawn from the tubes with a pipette, being careful not to shake; the tubes are again carefully filled with the pipette and again centrifugalized; this process is repeated ten or twelve times, so that in about half an hour we have the sediment in each tube from at least 115 c.c. urine, 230 c.c. in all. Then the bottom 3-5 c.c. of both tubes are placed in one tube and again centrifugalized. This method has been especially useful in the examination of urine for tubercle bacilli, where by spending a little more time we often use the sediment from 500 c.c. This method is rapid, thorough and avoids a tedious delay, as well as the necessity for any preserving agent. As a proof of this efficiency I may add that in over 200 examinations of which records are kept, a few casts have been noted in every instance, even in apparently healthy individuals. Respectfully,

Augustus Detwiler, M.D.

X-Ray Dermatitis; Suit for Damages.

Paducah, Ky., Feb. 2, 1898.

To the Editor:—In October, 1897, the undersigned was sued for malpractice in the sum of $10,000 for subjecting a patient to the X-rays which produced a severe dermatitis, the plaintiff setting up the claim that the apparatus was carelessly used, and further that the means used was not yet sufficiently well understood as to warrant its use for the purpose of locating foreign bodies, etc. The suit was ably contested and fortunately was decided in my favor, the court holding that in this as in other cases the physician was bound to use ordinary skill and judgment, and placed the case upon the same footing as chloroform anesthesia.

Knowing that there were several suits of this character in the courts I thought perhaps it would be of some interest to report it, since I have as yet been unable to find that the subject has been previously passed upon by the courts.

Respectfully, Frank Boyd, M.D.

PUBLIC HEALTH.

Louisiana State Board of Health.—The *New Orleans Medical and Surgical Journal*, January, alludes to the fact that that Board of Health is temporarily dismantled, all the members who were in office during the recent outbreak of fever having resigned. This step was taken on account of the demand of the daily press and various commercial bodies, representing the *vox populi*.

Direct Contagion of Typhoid Fever.—A striking instance is reported from Bucharest, where ninety-six cases of typhoid fever occurred in a crowded military school of 300 inmates, spreading directly from bed to bed. No local cause for the epidemic could be discovered, and it was traced to two pupils who had returned from an infected locality.—*Bull. de l'Acad. de Méd.*, December 21.

Malarial Fatalities on the Southeastern Coast of Africa, in Railroad Building.—Dr. Emil Holub, a South African scientist and explorer, speaking of the new Gazaland railway that traverses a part of the intensely malarial coast line, belonging to the "sphere of influence" of Portugal, says that that railway has earned a sad notoriety by reason of the great loss of life that has marked the course of its construction. During the past five years the contractors have contended with almost insuperable difficulties in procuring sufficient labor. More than seven hundred workmen have died from malarial fevers. Some of these were from Europe, but the majority were Asiatic natives. Out of 500 Afghans imported for this work, by way of India, 350 died in a short time. The divide between the shore line and the inner lofty tableland has been passed and the death-toll has been greatly reduced.

Death Rates of the Past and Present.—One of the events of the British Jubilee was the presentation of an address by the Lord Mayor and Sheriffs of London to the Queen on the subject of the sanitary improvements during her reign. The summary as ably condensed in an issue of the *New York Sun*, brings forth some startling facts. In Macaulay's comparison between the London mortality of 1844 and that of 1684, it appears that the death rate of 1685, not a sickly year, was between 43 and 44 per thousand, or one in every twenty-three. At the present moment the London death rate is 14.9 per thousand despite the enormous increase in the population. During the ten years from 1838 to 1847 the mean annual death rate for England and Wales was 22.16 per thousand while the ten years from 1881 to 1890 was 19.1 per thousand. This implies that 77,000 out of an estimated population of 29,000,000 were kept alive in each year of the latter period who would have died in each year of the former. All of which proves the value of mathematical precision in the calculation of life-values as affected by surroundings and the diffusion of intelligence.

New York State Board of Health.—Before the above named board Dr. George B. Fowler, on behalf of the Antitoxin Committee, has reported that the committee has notified the various manufacturers of antitoxin as to State supervision of its manufacture and sale in New York State. The manufacturers he said were in hearty sympathy with the board, and promised to aid it in the carrying out of the plan to have antitoxin tested before it was offered for sale. In the absence of reports on the subject from local bacteriologists the matter was adjourned for one month. The State Board will probably determine to have all the bacteriologic work done in the laboratory of the Health Department of New York City before the serums can be placed on sale as officially approved remedies. This is the plan pursued in Europe where every ounce of serum is inspected by duly authorized officials in the state laboratories. Dr. Herman M. Biggs, bacteriologist of that department is reported as saying that as a result of investigations he found several of the samples of serum submitted to him unfit for use owing to the occurrence of decomposition. Some of it was considerably below the standard strength.

The Latest in Regard to Beriberi.—A committee was sent from Holland to study the three epidemics of the diseases supposed to be beriberi at the Richmond Insane Asylum at Dublin, and their report has just appeared in the *Nederlandsch Tidjschrift voor Geneeskunde* for December 11. While they are not too positive, as a disease may assume different characteristics in different countries, yet they do not consider the epidemic polyneuritis at Dublin identical with the beriberi of the Netherlands colonies. The localizations are different; the extreme relaxation of the articulations observed at Dublin, "dropped wrists and feet," is unknown in the East Indies, and other symptoms are quite different. *Janus* (Vol. ii, No. 1) contains the results of an investigation of the hundred indigenous prisons in Java (280,000 inmates), with a view to determining the influence of the food on the appearance of the disease. The results are striking. The principal article of food is rice; in some prisons it is used with the pericarp, in others completely shelled. Where it is completely shelled the proportion of cases of beriberi to the number of prisoners is 1 to 39; where the pericarp is eaten with it the proportion is 1 to 10,000; where a mixture of the two kinds is used the proportion is 1 to 416. Further statistics show the disappearance of the disease in institutions in which the unshelled rice has been substituted for the shelled. In Japan, he states that the rations for the army and navy now include a certain proportion of barley and bread instead of the previous exclusive rice rations and beriberi has almost entirely disappeared.

Experiments in Disinfection at the New York Harbor Quarantine.—Experiments with formaldehyde gas are in progress at the quarantine station at New York, the principal tests having been made with the micro-organisms of cholera, diphtheria and the plague, on board the new steamboat belonging to that office. Other tests were made in a room in the laboratory which had been especially supplied for the purpose with an apparatus for spraying liquefied ammonia all about the room, in order that the gas might be neutralized whenever it was necessary. In the account of his experiments, the Health officer, Dr. A. H. Doty, describes twenty-five separate tests, in each of which three or more varieties of germs were used. Some of the experiments were made in a room of moderate size, containing about 1,000 cubic feet of air space. Others were in an air-tight steel box containing about 115 cubic feet of air space. In the series of experiments made with the steel chamber, the disinfecting solution in amounts ranging from eight to ten ounces, was exposed for different periods of time. Into a woolen blanket, cultures of different germs were rubbed, and in fifteen tests in which the quantities as well as the periods of time were varied, only one culture of the germs showed any signs of growth subsequent to the exposure to the solution. That was the diphtheria germ. Tests were next tried *in vacuo* as that method offered less resistance to the penetration of the gas. For twelve hours he exposed a quart of the solution. He used the germs of the Indian plague, of diphtheria and of anthrax. Some were exposed on linen, some were wrapped in a blanket, and others wrapped in a newspaper. These lived under the exposure to the gas, while others inside an envelope between a single sheet of paper, and inside a towel, were killed by the gas in nearly every case. A greater degree of success was met in subsequent experiments, in which it was learned that the gas was given off more satisfactorily by the use of a solution of some neutral salt. The apparatus was set up in the disinfecting steamer, and after four hours' exposure, every germ of cholera, plague and diphtheria was killed. These results were obtained when the germs were inside as many as three sheets of paper and envelopes, and were closed as tightly as possible. Fully four hours were needed, however, to make the tests successful. The value of the new disinfectant will be appreciated most at our harbors as a means of disinfection against southern ports. Already the mail tests with formaldehyde have been highly successful, and it is efficacious, too, in the case of blankets, towels and newspapers. It is said to have no bad effect on animal life and can be used without detriment.

The Department of Public Health.—The State Board of Health, of Indiana, has issued the following special circular:

The following resolution was passed by the Indiana State Board of Health at its regular meeting December 17, 1897:

Whereas, An urgent necessity exists for a more entended supervision and control of contagious and infectious diseases, to prevent the introduction of said diseases into the United States and the spread from one State to another of the same; and

Whereas, A bill to establish a National Department of Public Health and define its duties has for the past ten years been under serious consideration by the American Medical Association, also by the Public Health Association; and

Whereas, At the last meeting of the American Medical Association a report presenting a bill was adopted, and at a meeting of the Public Health Association held in Philadelphia, Oct. 29, 1897, said bill to establish a department was also adopted; therefore be it

Resolved, by the State Board of Health of Indiana, that we heartily concur in the action of the Associations herein named and earnestly request the co-operation of all who favor sanitary reform to urge upon Congress the necessity of passing the measure, thus insuring a more efficient and uniform control of infectious diseases.

Ordered: That the Secretary shall have this resolution referring to a bill to establish a National Department of Public Health and to define its duties, printed. And that he shall send the same to every State Health Officer in Indiana, requesting said officer to use his influence to promote the bill, and he shall further send a copy of the resolution to each member of all State Boards of Health. J. N. Hurty, Secretary.

The Vaccine Laboratories of Germany; A "Germ free" Lymph not yet Attained.—Dr. Huddleston of the New York City Department of Health, states that the best European laboratories of this kind are to be found in Germany. While calf lymph is almost universally used upon the Continent, in England very little progress has been made; the latter country has not as yet outgrown the experimental state. The laboratories of Germany are under government control. The percentage of successful vaccination in Berlin is 96.84; in Hamburg 94.85. The best laboratory in buildings and equipments is that of Cologne, which the author described at length. At Hamburg vaccination of 1700 primaries with "germ-free" lymph gave eight cases of skin eruptions. The Imperial Berlin Commission recently reported, that in its judgment, inflammatory appearances are due: 1, to the condition of the person vaccinated; 2, to the greater or less amount of effective lymph in the material applied, and 3, to the technic employed in the inoculation. The commission stated that inflammatory complications are especially frequent if the incisions made in the inoculations are numerous, long, deep and close together. It is a familiar fact that inflammation is more frequent in secondary than in primary vaccination. It is also unfortunately the case that a number of German reports state that quite enough disinfection of the arm by means of sublimate solution and ether before vaccination does not prevent all inflammatory complications, but in some cases has actually seemed to increase them. Nevertheless it has been a great advantage to vaccine production that practically "germ-free" lymph may be obtained; because the germs present, while as a rule non-poisonous, are it is thought injurious to the vaccine organism, and it is a fact that by employing "germ-free" lymph the so-called "purulence" in the producing animals, one of the former bugbears of the vaccine laboratory, has practically disappeared. Laboratory workers have about come to the conclusion that it is at present impracticable to produce a sterile vaccine, but two different and partially effective methods of bringing down the number of germs have been discovered. One method consists of centrifugalization of virus which has been diluted with water, and the second, of mixing the virus with varying proportions of glycerin. The former method reduces the number of bacteria present but does not entirely remove them; the latter is much more effective, and by means of it the number of germs in lymph as tested by making cultures on agar, can always be materially reduced within a period which varies from a few days to a few weeks. Sometimes this does not secure sterility, but when old glycerinated virus is not sterile the inference simply is that the germs present are such as resist the action of glycerin; the bacillus subtilis, for instance, which is non-pathogenic is unaffected by glycerin. It may then be fairly stated that lymph practically, although not absolutely "germ-free," can be secured with considerable certainty. The results from the use of this so-called "germ-free" lymph, whether absolutely sterile, have not, however, secured freedom from the inflammatory complications of vaccine. On the contrary it is the general testimony given by those who have experimented at length with such lymph that inflammatory reactions occur in about the same proportion of cases as before this lymph was introduced, and also that not merely inflammatory complications are present, but occasionally vaccinal eruptions as well, as has already been stated above regarding the Hamburg experiments. Finally, it should be added that while every brand of vaccine has its own bacterial flora, the few germs which are common to almost all are very clearly non-pathogenic to men or animals. Repeated inoculations of germ-bearing lymph have been made in guinea-pigs, rabbits and other test-animals, and almost invariably without any pathogenic results.—*Medical News*, January 1.

ASSOCIATION NEWS.

Denver Accommodations.—The following is a partial list of hotels and rooming houses with rates agreed to for the Denver meeting of the American Medical Association, June 7 to 10, 1898.

Brown Palace Hotel, 17th Street and Broadway. Take 17th Street car, to Hotel. European plan, $1.50 per day; American plan, $3.50 to $5 per day.

The Albany, 17th and Stout Streets. Take 17th Street car to Stout Street. American plan, $2 to $3.50 per day.

L'Imperial Hotel, 14th Street and Court Place. Take Colfax Avenue car to Court Place, American plan $2 to $3 per day.

Windsor Hotel, 18th and Larimer Streets. Take 17th Street car to Larimer. American plan, $2 to $3.50 per day.

The New St. James Hotel, Curtis Street, near 16th Street. Take 16th Street car to Curtis Street. American plan, $2 to $3 per day.

The Oxford Hotel, 17th and Wazee Streets. Two blocks above depot. European plan, $1 to $3 per day.

American Hotel, 16th and Blake Streets. Take 16th Street car to Blake Street. American plan, $2 per day.

New Markham Hotel, 17th and Lawrence Streets. Take 17th Street car to Lawrence Street. European plan, $1 per day and upward.

Metropole Hotel, Broadway near 17th Street. Take 17th Street car to Broadway. European plan $1 to $2, single room, per day.

Hotel Broadway, Cheyenne Street and Broadway. Take Colfax Avenue car to Cheyenne Street. American plan $1.25 to $1.50 per day.

The Vallejo, 1420 Logan Avenue. Take Colfax Avenue car to Logan Avenue. American plan, $2 per day and upward.

The Devonshire, 14th and Logan Avenues. Take Colfax Avenue car, to Logan Avenue. American plan, $1.50 per day and upward.

The Albert, 17th and Welton Streets. Take 17th Street car to Welton Street. European plan $1 to $1.50 per day.

The Aldine, 1013 17th Avenue. Take 17th Street car to Ogden Street. American plan $1.25 per day.

The Richelieu, 1727 Tremont Street. Take 17th Street car to Tremont Street. European plan, $0.50 to $1.00 per day.

The Earl, 1430 Tremont Street. Take Colfax Avenue car to Tremont Street. American plan, $1.50 to $2 per day.

Glenarm Hotel, Glenarm and 15th Streets. Take Colfax Avenue car to Glenarm Street. European plan, $1 per day and up.

The Bonaventure, 18th and Glenarm Streets. Take 17th

Street car to Glenarm Street. European plan, $0.50 to $1.50 per day.

The Drexel, 17th and Glenarm Streets. Take 17th Street car to Glenarm Street. European plan, $0.75 to $1.50 per day.

For reservation of rooms please apply to hotel direct. For especial information address, ROBERT LEVY, M.D., California Building, Chairman Committee on Hotels.

SOCIETY NEWS.

The American Medico-Psychological Association.—The fifty-fourth annual meeting of the American Medico-Psychological Association will be held in St. Louis, Mo., May 10–13, inclusive. C. B. Burr, secretary.

The Fifth District Branch of the New York State Medical Association will hold its fourteenth annual meeting at 315 Washington Street, Brooklyn, on Tuesday, May 24, 1898. Gonorrhea will be the subject for papers, discussions, and reports of cases. Robert W. Taylor will open the subject by giving the pathology and treatment in males. J. W. S. Gouley will treat of urethral strictures, William E. Beardsley of gonorrheal rheumatism and Lawrence Coffin of gonorrheal ophthalmia in adults. William McCollom will discuss the "Moral Prophylaxis and the Ethical Duty of Physicians to the Public;" J. C. Bierwirth the "Medico-legal Responsibility of Physicians to Their Patients and Patients' Friends." L. Grant Baldwin will give the symptoms and diagnosis of gonorrhea in females and will be followed by Walter B. Chase and Frederick H. Wiggin on the palliative and operative treatment. N. L. North, Jr., will present the subject of "Gonorrheal Ophthalmia of Infants" and will be followed by R. Mathewson and L. A. W. Alleman on the same subject. N. W. Leighton, president; E. H. Squibb, secretary.

BOOK NOTICES.

An Epitome of the History of Medicine. By ROSWELL PARK, A.M., M.D., Professor of Surgery in the Medical Department of the University of Buffalo, etc. Illustrated with Portraits and other Engravings. One Volume, Royal Octavo, pages xiv, 348. Extra Cloth, Beveled Edges, $2.00 net. The F. A. Davis Co., Publishers, 1914 and 1916 Cherry Street, Philadelphia; 117 W. Forty-second Street, New York; 9 Lakeside Building, Chicago.

This is an excellent work and should be in every physician's library, as up to a recent time the history of medicine has been greatly neglected, but within a few years numerous works have appeared on the subject.

The work is well illustrated, portraits being given of many of the noted medical men. It is not only of interest to physicians and medical students, but to laymen as well. And this brief work, while it does not aim to be anything but an epitome, gives a fair understanding of the subject.

It is open to criticism in some respects. Hardly enough credit has been given to surgeons of the Arabic period, but in the main there is little from which to dissent and as a whole we have nothing but commendation.

A System of Practical Medicine. By American Authors. Edited by ALFRED LEE LOOMIS, M.D., late Professor of Pathology and Practical Medicine in the New York University, and WILLIAM GILMAN THOMPSON, M.D., Professor of Medicine in the New York University. To be completed in four imperial octavo volumes, containing from 900 to 1000 pages each, fully illustrated in colors and in black. Volume III.—Diseases of the Alimentary Canal, Peritoneum, Liver and Gall Bladder, Spleen, Pancreas and Thyroid Gland, Chronic Metal Poisoning, Alcoholism Morphinism, Infectious Diseases Common to Man and Animals, Miscellaneous Subjects. For sale by Subscription. Per volume, Cloth, $5.00; Leather, $6.00; Half Morocco, $7.00. Lea Brothers & Co., Publishers, Philadelphia and New York, 1898.

The contributors to this third volume are: Richard Cabot, M.D.; Warren Coleman, M.D.; George Dock, M.D.; Frederick Finley, M.D.,; J. E. Graham, M.D.; H. A. Hare, M.D.: Walter James, M.D.; William W. Johnston, M.D.; Allen A. Jones, M.D.; Francis Kinnicutt, M.D.; Alexander Lambert, M.D.: J. Law, F.R.C.V.S.; George Roe Lockwood, M.D.: Henry Lyman, M.D.; W. T. McNutt, M.D., M.R.C.S. Edin. etc.; Allen M. Starr, M.D.; James Stewart, M.D.; Charles Stockton, M.D.; Victor C. Vaughan, Ph.D., M.D.

The topics include: Diseases of the alimentary canal; diseases of the peritoneum; diseases of the liver and gall bladder; diseases of the spleen; diseases of the pancreas; diseases of thyroid glands; chronic metal poisoning; alcoholism; morphinism; infectious diseases and miscellaneous subjects. The high standard set by the predecessor of this volume has been maintained in the present and we have no hesitancy in recommending the book as conservative, judicious and instructive. There is a copious index at the conclusion of the volume which is well printed on excellent paper with clear type.

Outlines of Rural Hygiene. For physicians, students, and sanitarians. By HARVEY B. BASHORE, M.D., Inspector for the State Board of Health of Pennsylvania. With an Appendix on The Normal Distribution of Chlorine by Prof HERBERT E. SMITH, of Yale University. Illustrated with Twenty (20) Engravings. $5\frac{1}{2}$ x 8 inches. Pages vi–84. Extra Cloth, 75 cents net. The F. A. Davis Co., Publishers, 1914-16 Cherry Street, Philadelphia; 117 W. Forty-second Street, New York City; 9 Lakeside Building, 218-220 S. Clark Street, Chicago.

This little work is intended to throw light in dark places and to call attention to the neglect of sanitary rules in districts outside of the great cities. The scope of the work is as follows: Water-supply, waste disposal, the soil, habitations, disposal of the dead and normal distribution of chlorin.

The work is well illustrated and is undoubtedly very useful for the classes for whom it is intended.

There is certainly room for missionary work in the direction indicated.

A Manual of Obstetrics. By A. F. A. KING, A.M., M.D. Seventh Edition, with 223 illustrations; pp. 574. Lea Bros. & Co.: Philadelphia and New York, 1898.

When a work has passed its seventh edition it requires but little additional notice except to say that it has been brought up to date and has in no wise degenerated; and the author says in his preface that in the present revision some errors and omissions have been rectified, and additions introduced; the chapter on "puerperal septicemia" has been rewritten, and throughout the work an effort has been made to accentuate the importance of antiseptic midwifery with more emphasis than formerly. This work, which has grown from the date of its first appearance, has now become a volume containing matter enough to make a book twice the size if printed in larger type, and indeed it may be said that the amount of material contained in this compacted form is more than equal to some more pretentious books.

The teachings of the writer are sound and judicious and that careful condensation which made the first volume a favorite with the profession is continued in this.

A Living Substance as Such, and as Organism. By GWENDOLEN FOULKE ANDREWS. Supplement to Journal of Morphology. pp. 176. Ginn & Co.: Boston. The Athenaeum Press, 1897.

This work is a philosophic study, from a biologic standpoint, of the living substance. The work was carried on partly at the Marine Laboratory at Wood's Holl, Mass., and partly at the University of Pennsylvania.

The rapidly changing protoplasm is an evanescent structure to fix and classify, and camera drawing of the finest structure-phenomena the author finds impossible. "Of the living substance-phenomena," says the author, "it is about as practicable to reproduce it as it would be to trace upon a wall reflections thrown from disturbed water. Some camera drawings of the filose phenomena in starfish and ecchinus eggs were made, but such can show by direct tracing larger masses only of the substance and are in point of time and relation true but to a limited extent. It follows from the very nature of these phenomena, as will be seen, that they can not be traced; for while the hand follows the minutest portion the relations of the whole will have undergone a change with important transpositions and transmutations of both structure and substance. In point of minuteness also many of the facts which can be optically noted defy camera tracing since the finest steel point is still too coarse for the work."

Notwithstanding these defects, the existence of the visible protoplasm structure has given good definite results which the author sets forth at some length in the volume under consideration.

The Aphasias and their Medico-Legal Relations. By F. W. Langdon, M.D., Cincinnati, pp. 42. Norwalk, Ohio, 1898.

This monograph is a paper read before the Ohio State Medical Society at its Fifty-second Annual Meeting at Cleveland, Ohio, May, 1897.

It is of great interest and well illustrated. The author concludes that in the case of aphasia, if the sanity of the individual is established any legal document should be recognized, when he can understand fully its nature by any receptive channel, viz., hearing, visionary or muscular senses, and can in addition express assent or dissent, whether this expression be by spoken speech or pantomime, or written speech: Opinions which must be regarded as sound.

Proceedings of the Kansas Medical Society. Paper. 104 pages. Topeka, 1897.

This volume contains the proceedings of the Thirtieth annual meeting held at Topeka, May 13, 14 and 15, 1896; also of the thirty-first annual meeting. The report, however, does not include the papers and discussions.

NECROLOGY.

Charles R. Taber, M.D., Fort Motte, S. C., January 27, aged 60 years. He was a delegate to Cuba, by the State, for the purpose of investigating yellow fever and its causes, and the best means of preventing its introduction into the State. In 1888 he was a delegate to the International Medical Congress in Berlin, and was for years president of the State Medical Association and at the time of his death president of the State Board of Health.

Gerard C. Paoli, M.D., Chicago, January 29. He was born in Triondheim, Norway, June 23, 1815. In 1832 he went to Christiania and there pursued literary and scientific studies for two years, after having previously graduated from a university. In the middle of his post-graduate course he was appointed an assistant to the district physician. After six years' study in Christiania he went to Stockholm. One of the acquaintances he then made was Ole Bull, whom he afterward knew intimately in this country. Dr. Paoli resided in London for a while, making diligent observations in the hospitals, then came to this country. Twice he was president of the Chicago Medical Society, twice its vice-president, and he assisted materially in establishing the Woman's Medical College and the Scandinavian Medical Society.

Isaac Massey, M.D., West Chester, Pa., January 31. He was born in 1838. His grandfather, Israel Massey, was a life-long resident of Valley Forge, where he owned the land upon which Washington's headquarters were situated. Dr. Massey was a member of the Board of Trustees of the House of Refuge at Glen Mills, one of the staff of physicians at the Chester County Hospital, a member of the College of Physicians and Surgeons of Philadelphia, and a member of the Pennsylvania State Medical Society and the Chester County Medical Society.

Samuel T. Spees, M.D., Tuscola, Ill., January 29.——Edward W. Riley, M.D., Kansas City, Mo., January 27, aged 47 years.——John Sarms, M.D., Gallipolis, Ohio, January 29, aged 73 years.——Louis Pagin, M.D., South Bend, Ind., January 20, aged 80 years.——Michael Talbot, M.D., Niagara Falls, N. Y., January 26, aged 52 years.——E. C. Johnson, M.D., Hammond, Ind., February 5.

MISCELLANY.

Antistreptococcus Serum.—Belfanti and Carbone have established that this serum protects only against infection by the same variety of streptococcus. The question of the variety of the streptococcus is therefore of supreme importance in treatment.—*Cbl. f. Chir.*, Dec. 31, 1897.

A Nurse Honored.—The decoration of the Legion of Honor has just been conferred upon Miss Bottard who for fifty-six years has served in the nervous disease service of the great Paris hospital of la Salpetrière, under Charcot for many years, who ascribed much of his success to her unparalleled devotion. Several times, three years have passed without her leaving the premises.

A Double Current Urethral Sound.—A groove along one side of the canula, which is a glass tube about seven centimeters long and twelve millimeters in diameter, allows the fluid to flow back into the receptacle provided without soiling the clothing. A projecting rim on the outer end prevents the canula from entering farther than the anterior urethra.—*Bull de l'Acad. de Méd.*, December 21.

Change of Name and Location.—The British Institute of Public Health will be styled in future the Royal Institute of Public Health, and Her Majesty the Queen has been graciously pleased to accept the office of patron. The council of the Institute has conferred the Harben Gold Medal for 1898 upon Lord Playfair, and has appointed Dr. W. R. Smith the Harben Lecturer for 1899. The offices of the Institute have been removed to 197, High Holborn, London.

Improved Lodging Homes.—The new Mills House No. 1, in New York City, is a great success as a poor man's hotel, and is likely to pay a good dividend. In London the same field is being covered by the Rowton House, and another was opened three weeks ago which will provide good clean beds for 800 men, at sixpence a night, or for ten shillings a week, with board. They are always full, and they pay, for 800 sixpence a day means £7300 a year.

The Hoagland Laboratory, Brooklyn, N. Y.—Dr. C. N. Hoagland has again made a donation to the above named institution, by way of a New Year's gift, by the conveyance of a security valued at $24,000. Dr. Hoagland's benefactions to the cause of scientific research are said to have reached a figure considerably in excess of a quarter of a million of dollars during the last ten years. Dr. Ezra H. Wilson, who has for four years been the bacteriologist in chief to the local department of health, has resigned from his sanitary position to devote his time fully to the conduct of this Laboratory.

Improved Appliances for the Sick.—A new lifting appliance fits directly on the four posts of the bed, which are extended upward for the purpose. The patient lies permanently on the broad linen support, parts of which can be unbuttoned as required to allow access to any part of the body. It adds very little to the weight of the bed. P. Jacobsohn has also devised a simple wheeled frame that can be applied to any bed to enable it to be wheeled lightly about. It consists of two light horizontal iron frames, forming two superposed hollow squares. The lower is fitted with rubber wheels. A stout jack screw at each end turned by a single crank, pushes the two frames apart and raises the bed off the floor. Another appliance of his invention is a light iron frame with a jack-screw, which can be applied under the foot or head of the bed and raise that end to any level desired without danger of jarring the patient. Iron hooks grasp the bed and the frame rests solidly on the floor.—*Deutsche Med, Woch.*, January 6.

Statistics of Anesthetics at the Italian Congress of Surgery.—Three deaths were reported, but two are dubious, and only one was a typic case of chloroform intoxication, out of 3760 cases of general anesthesia; chloroform was used in all but eight. Six hundred and thirty-seven operations without anesthesia were reported; 292 with local anesthesia. A case of icterus consecutive to chloroform was reported, with serious nervous phenomena, which grew worse with the administration of chloral, but gradually passed away (*Gaz. d. Osp. e d. Clin.*, November 14). Combining the Italian statistics for the last two years, there were thirteen deaths in 53,992 chloroform anesthesia, and one death in 2802 with cocain.

Coincidence of Epilepsy and Diabetes.—W. Ebstein reports several observations of epilepsy coinciding with diabetes mellitus decipiens, and urges investigation of the urine of epileptics, especially in the Jacksonian form, as the glycosuria frequently escapes notice.—*Deu. Med. Woch.*, January 6-13. We note also a communication by Orlandi in the *Gaz. de Osp. e d. Clin.* of December 26, reporting a case of Jacksonian epilepsy accompanied by an enormous amount of aceton in the urine and blood. He established experimentally that the intoxication could not be attributed to the aceton, but that the latter was simply a symptom of another intoxication.

Physicians in Public Life.—The present French Senate numbers thirty-nine physicians and three veterinarians among its 300 members, while in the Lower House there are fifty-eight physicians, two veterinarians and four druggists to the 581 deputies, a proportion of one to nine. In Germany the proportion is very much less—one to sixty-six (1893). In the last ten years France has had physicians in the cabinet; ministers of the navy, interior and of agriculture. Among the better known members of the legislature are Professors Cornil and Lannelongue, and the popular surgeon Labbé. Trelat, Trousseau and Malgaigne were also senators in their day. The French legislator is usually first the mayor of his town or occupies some other public office (in Paris, member of the city council), thus showing the remarkable interest taken by the medical men of France in public affairs and politics and the esteem in which they are held. (From Paris letter in the *Deu. Med. Woch.*, December 23.) Italy has twenty-three physicians in the legislature, including six professors.

The Passage of Solid Particles and Air from the Bladder into the Kidneys, etc.—Professor L. Lewin announces in the *Deutsche Med. Woch.* of December 23, that he has established by experimental tests that air and solid bodies (ultramarine blue or green rubbed into a gum arabic solution, etc.) introduced into the bladder, find their way by mechanical or peristaltic action, or both, through the ureters into the kidneys, and from there through the uriniferous tubules, the lymph spaces and the blood vessels into the circulation, the heart, pulmonary vessels and even the liver. If the renal vein is severed after being ligated toward the center, and ultramarine green is injected into the bladder under high pressure, it soon appears in the fluid issuing from the vein. He proves thus that there is natural communication between the bladder and the heart, which allows the passage of air and solid particles, much more of living micro-organisms, and explains many sudden deaths from embolism and certain general infections.

Spontaneous Sediment Formation in the Blood.—Biernacki adds to his previous communication in regard to this means of clinic investigation (*vide* JOURNAL, Dec. 25, 1897), that he has never known a case of functional neurosis to fail to present an abnormal sediment formation. In the neurosis in which neurasthenic symptoms predominate, with or without nervous dyspepsia, the sediment forms exceptionally slowly, and the assumption that this phenomenon depends upon abnormal processes of oxidation, is confirmed by the fact that the venous blood in these cases is much brighter colored than usual. On the other hand, functional neurosis in which the hysteric symptoms predominate, shows exactly the opposite; the sediment forms with extreme rapidity and the amount of sediment is small. These results have been constant in the thirty cases examined, and cast a new light upon functional neuroses, and possibly upon their etiology. They also furnish a new means to detect simulation. He asserts that abnormal sediment formation is the most delicate of all tests, as even one organ affected will disturb the sedimentation, although the individual is otherwise in normal conditions. In hyperglobular blood the sediment forms slower than in normal, while the process is abnormally rapid in blood poor in corpuscles and hydremic.—*Deutsche Med. Woch.*, December 30.

The Jewish Population of the United States.—The American Jewish Historical Society has published a note on the above subject, in which some interesting statistics are presented. Twenty years ago the first systematic attempt to obtain definite statistic information was made by the Board of Delegates of the American Israelites, with the assistance of the Union of American Hebrew congregations. Incomplete reports secured showed a Jewish population of 189,756. By 1880 these figures had increased to 230,257. The total population of the country in that year was 50,155,783. It is calculated that since 1880 something over 485,000 Jews have immigrated to the United States. This addition, together with the increase through births, gives at a conservative estimate a present Jewish population of 938,000. The total population of the country is now estimated to be 75,000,000. In other words, it is one-half larger than it was seventeen years ago, while the Jewish population is more than four times larger. The Jews are not numerous in agricultural States. Their greatest numbers are in States having large cities, as, for instance, New York, 350,000; Pennsylvania, 85,000; Illinois, 85,000; Ohio, 50,000; California, 85,000; Maryland, 35,000; Missouri, 25,000; New Jersey, 25,000; Louisiana, 20,000; Massachusetts, 20,000.

Importance of Chromatolysis.—The complexity of the nerve-cell and the dissolution and disappearance of the chromatophilous elements, to which the term chromatolysis has been applied, were among the most interesting subjects treated at the last International Congress (*vide* JOURNAL, Vol. 29, pages 695 and 745). Recently, Van Gehuchten has demonstrated that this chromatolysis is observed whenever a sensory or motor fiber is severed, ligated or compressed. The motor fiber gradually returns to its normal condition, but the sensory fiber degenerates and disappears. He ascribes this difference to the fact that the lesion of the peripheric prolongation of the sensory cell deprives the latter of all external excitation. External excitation is therefore evidently indispensable to the anatomic integrity of the cell, and it perishes without it. As excitation from the external world is thus indispensable to the preservation of the neuron, upon which all the tissues and organs depend, it follows therefore that the life of the nerve-cell, and hence the life of all the elements that constitute our organism, is impossible without excitation from without.—*Gaz. d. Osp. e d. Clin.*, January 11.

Condemnation of the Office of Coroner.—The following is a part of a recent presentment of grand jury of the County of Kings, New York: "We have also investigated the methods in vogue in the office of the coroners. It is proper, however, to say that we have not taken up the methods in vogue under the present coroners, but only for the time prior to their taking office. We recommend to the legislature of the State that the office of coroner be abolished. We believe, from our investigation, that the office is useless, that it has no practical effect in the ferreting out of crime; that the methods in vogue in that office during the time of our investigation are open to the most severe censure; the manner of conducting the business was inefficient, and the powers of the coroners were delegated to subordinates whose chief functions seem to be to get rid of the business and collect the fees incident to the office, for their chiefs. We believe that the continuance of the coroner's office in its present shape, as the law now stands, will lead to further abuses; that the law governing the rights, duties and obligations of coroners is not clear nor specific; that the very fact that various interpretations as to the rights and duties of the coroners may be put upon the law by those who should be familiar with it, will lead to abuses which only the entire abolition of the office can wipe out."

Suture of the Tendons.—Delamare reports a case of secondary suture of the extensor tendons of the three last fingers to the extensor tendons of the index, it being impossible to find the central ends of the severed tendons. The functional result was excellent.—*Gaz. Méd. de Paris*, January 1.

"Virchow's Archiv" completed the fiftieth year of its existence December 29, with the one hundred and fiftieth volume. A banquet on this date in honor of Virchow and the jubilee of the *Archiv*, was arranged by a committee presided over by Professor v. Bergmann, to which the members of all the medical faculties and of all the medico-scientific societies in Germany were invited.

Unna's Prize.—There was no competition for this prize in 1897, consequently the amount offered, 300 marks, is doubled, and 600 marks are now to be awarded for the best contribution on the subject announced: "An investigation whether and to what extent all the stains considered specific for elastin will also stain elacin." Send communications to the care of Leopold Voss, Hohe Bleichen 34, Hamburg, before December, 1898.

Our Aryan Origin.—According to a recent communication to the Paris Société d'Anthropologie, based on the latest ethnic and philologic research, and archeologic data, including much personal work, Zaborowski locates the Aryan country in the plains of the north of Europe extending to the limits of Asia, and ascribes to the blonde Cymri the principal rôle in the founding of the Aryan race.—*Progrès Méd.*, December 25.

Potassium Permanganate and Argonin in Gonorrhea.—By combining these two remedies, Stark reports that a much more prompt and effective action is secured. The daily rinsing with the permanganate softens the tissues of the urethra and favors the penetration of the argonin, which is injected three times a day in a 2 per cent. solution.—*Semaine Méd.*, December 29.

Length of Life of Anthrax Spores.—It has been demonstrated at Professor Petrone's Institute of Path. Anat. at Catania, that anthrax spores retain their vitality twelve years, and not until after thirteen years were guinea pigs safe from infection by inoculation. But their virulence is not as great during the latter years, so that the larger animals and man could scarcely be infected by anthrax spores eight or ten years old.—*Gaz. d. Osp. e d. Clin.*, January 6.

Concentration of Therapeutic Sera by Freezing.—Dr. Buywid has been engaged in experiments with diphtheria and tetanus antitoxin preparations in order to obtain concentrated solutions. The dried preparations are, in the minds of many, unreliable and under certain circumstances may be dangerous. A partial evaporation of sera at a low temperature gives a cloudy product. A better method consists in freezing the remedy. The ice is clear and there remains only a small amount of a brownish fluid in the bottom of the glass. If the glass of serum is allowed to freeze slowly the upper layer is without color and contains little beside pure water. The lower layer is a clear, bright yellow and contains almost all of the antitoxin. The two are readily separable.—*Centralblatt für Bacteriologie.*

Birth in Coffin.—A woman was found drowned, six months pregnant. After burial a murder was suspected and the coffin reopened, when the inverted uterus was found between the thighs of the corpse with the body of a fetus 36 cm. in length. The two theories proposed: that the accumulation of gases in the abdomen forced out the contents of the uterus, or that this was accomplished by post-mortal contractions of the uterus, are both considered improbable by Bleich who reports the case.—*N. Y. Med. Woch.*, December 1, from *Vierteljahrsschrift f. Ger. Med.*

The Two-hundred Guinea Fee.—When railroads had become general throughout the country it was felt by some of the leading physician and surgeons of the metropolis that an easier, less tedious and less expensive mode of traveling ought in fairness to the public to be met by some reduction in the rate of remuneration, and after a full consideration of all the circumstances it was concluded in sequel to a conference between Dr. Paris and Sir Benjamin Brodie, on the part respectively of the College of Physicians and of the College of Surgeons, that a reduction of one-third would be fair to all parties and meet all the requirements of the case, and thus that a physician's journey of 300 miles would imply a fee of 200 guineas in the place of 300, as it had previously done.—The "Life of Sir Henry Halford."

Riot over a Missionary Hospital.—At Jerusalem the Jews have been the causers of no little turmoil, and a missionary hospital of British extraction has been the storm center of trouble for this reason mainly, because the meat served to the patients was not known to be *kosher*. If the inferior rabbis could have induced or compelled the hospital authorities to employ Jewish slaughterers there would, it is stated, have been no riot, bloodshed nor arrests. A few pence difference one way or the other would have made the difference between peace or riot. The *kosher* argument, as it is called, is used as a convenient cloak for very trivial financial enterprises; a fraction of a cent per creature slain by the religious butcher, is sometimes all that comes into the coffers of the rabbi, and yet this picayune profit may become the source of much contention, confusion and sometimes of crime from the Gentile standpoint of view.

The Diazo-Reaction in the Urine of Infants.—As the result of numerous and painstaking investigations, Umikow announces in *Wratsch* (Nos. 39 and 40), that the diazo-reaction never appears in the urine of healthy infants. Fever has no influence upon its appearance. It never appears in pneumonia, diphtheria, intestinal catarrh, chickenpox, otitis media, eczema of the face, inflammation of the lymphatics, congenital syphilis, bronchitis, laryngitis, pleuritis or rhinitis. On the other hand, it is invariably present in erysipelas and measles and the more pronounced as the disease is severe. As the disease subsides, the diazo-reaction diminishes. It was sometimes observed in the prodromal stage of measles, and it persists until the end in the fatal cases, having thus great prognostic value.—*St. Petersb. Med. Woch.*, December 25.

Percussion of the Skull.—It was announced at the Italian Congress of Surgery, which concluded its sessions at Rome, October 30, that percussion of the skull is perfectly practicable and will be found a valuable aid in diagnosing. E. De Paoli and A. Mori have made an extensive study of the subject, and state that the sound obtained by percussion with the fingers is produced by the vibrations of the bone walls, the contents of the skull and the air in the buccal cavity. Any modification in the sonority indicates an intracranial lesion and also its exact location. The sound obtained by percussion of symmetric points is identical if both are normal. They introduced the yolk of an egg, blood and other substances, into the skulls of cadavers, and the variations in the percussion were instructive. Applying the results of these experiments to patients with circumscribed lesions, they diagnosed positively by percussion, the exact location of cerebral abscesses, hematoma under the dura mater, localized meningitis, etc., and the diagnosis was confirmed in every point by the operation or necropsy later. When percussion is painful they use the stethoscope placed on the bregma.

Memorial to Billroth.—The portrait memorial erected to Billroth under the arcades of the Vienna University was unveiled November 7, in the presence of a brilliant assemblage which included numbers of his former pupils who had traveled far to do honor to his memory. He is represented standing at the desk with the scalpel in his hand. We notice in the address of Professor Gussenbauer, his successor, the following tribute to an American; speaking of Billroth's famous motto, *Durch Klarheit zur Wahrheit*, which inspired all his scientific work, he added: "When the famous surgeon Samuel D. Gross of Philadelphia, was present at a lecture by Billroth, on 'Neoplasms,' he remarked to him, 'I congratulate myself on having heard your lecture; you talked to your students with such truth, such rare truth.' This testimony is sufficient, as it came from no less a one than Samuel Gross."

Can Order Surgical Examination in Divorce Case.—Judge Russell holds, at a special term of the supreme court, New York County, in the case of Cahn vs. Cahn, October, 1897, that, in an action for the annulment of marriage on the ground of physical disability of the defendant at the time of the marriage, and since continued, the court can direct a surgical examination of the person of the defendant, in aid of the charge which is the foundation of the action. The judge admits that the New York Civil Code does not provide for such an examination, Section 873 thereof referring only to examinations of the kind in cases of demands for personal injuries; nor does he find any decision of the courts of that State since the adoption of the Code of Procedure in 1848 which provides for such an emergency. On the other hand, the inherent power of the court has been held not to extend to an examination of the person by surgeons in an action for personal injuries. Nevertheless, he pronounces in favor of this extreme exercise of the directing power of the court, to be enforced, if necessary, by contempt proceedings. Without the exercise of such a power, he says, the court would be impotent to decree annulment of marriages obtained by fraud of this nature. The defendant could simply resist the sufficient proof, obtainable alone by an examination of his person, relying upon the well-known rule of the courts to refuse annulment of the sacred tie of marriage unless upon satisfactory proof, and thus hold the innocent consort to the perpetual burden of a marriage with a sexless husband.

Identifications of Organs for Analysis.—The evidence in a murder case fully identified and accounted for the whereabouts of certain organs from the time they were taken from the body of the deceased until they reached a Chicago toxicologist, except for the space of an hour or so when they were left sealed in the office of a physician, while he went to dinner, and while they were in transit, by the express company, to Chicago. If they were properly delivered to the express company for shipment to the toxicologist, in Chicago, as the evidence showed they were, this, the supreme court of Iowa holds, State vs. Van Tassel, October 1897, was sufficient to cover the period of time necessary to their shipment. When the physician referred to went to dinner, he left the jars, containing the organs he had removed from the body of the deceased, in his office, but he testified that they were locked up in a commode, and that he also locked the office door when he was away, and that no one was in the room while he was gone. The city marshal assisted the physician in packing the jars containing the organs taken from the body of the deceased, and, as soon as they were packed, the marshal took the box, and delivered it to the assistant express agent, who held it in his possession and had it under his immediate supervision, until it was shipped to Chicago. The toxicologist received the box in the apparent condition in which it was when shipped, and analyzed the contents of the jars. Surely, holds the court, this was a sufficient identification to justify the admission of the toxicologist's evidence. That there was some little conflict as to the number of jars sent and received, the court does not consider of itself sufficient reason for rejecting the evidence.

The Antivivisection Bill.—The following has been mailed to each senator and congressman from Illinois:

JERSEYVILLE, ILL., Jan. 23, 1898.

To the Hon. ———. *Dear Sir:*—We, the physicians of Jerseyville, Ill., earnestly urge you to oppose the passage of Senate Bill 1063; Calendar 138; entitled, "A Bill for the Further Prevention of Cruelty to Animals, in the District of Columbia." Our reasons for opposition are these:

1. Its enactment would serve as a precedent for the passage of similar bills by the legislatures of the various States.

2. Such legislation would do irreparable harm to countless men, women and children.

3. The knowledge gained by experiment upon living animals enables us to save thousands of people that otherwise would have died.

4. The knowledge thus gained in regard to diphtheria alone, is enough to convince any one that the suffering inflicted upon the lower animals, to gain such a knowledge, has been amply repaid.

5. The aim of such experiments, is not to inflict suffering, but to ameliorate the suffering of mankind.

6. Legislation, such as Bill 1063, is directly opposed to the progress of science, the healing of wounds, and the saving of life. Therefore, we oppose it and sincerely hope that you will use your vote and influence toward its defeat.

Yours very truly,

Drs. C. DuHadway, J. S. Williams, Edward L. H. Barry, A. A. Shobe, Thomas A. Kingston, W. W. Estabrooke, C. R. Enos, A. K. VanHorne, A. A. Barnett, H. R. Gledhill, A. G. Porter, Albro B. Allen, J. W. Enos.

Doctors not the only Ones who Cannot Remove the Buried.—A North Carolina statute provides "That any person who shall without due process of law, or the consent of the surviving husband or wife, or the next of kin of the deceased, and of the person having the control of such grave, open any grave for the purpose of taking therefrom any such dead body, or any part thereof buried therein, or anything interred therewith, shall be deemed guilty of a felony." It was suggested by the defendants, in the case of State vs. McLean, they being the mayor and commissioners of the town of Burlington, with the keeper of the town cemetery, that the mischief intended to be suppressed by the statute was the desecration and robbery of the graves of the dead, and that the spirit of the statute did not, if its letter did, make it an offense for them to command, counsel, and procure the opening of a grave in an unpaid-for lot and the removal therefrom of the dead body to the free part of the cemetery. But the supreme court of the State declares, Nov. 9, 1897, that the statute is directed against all who disturb the last resting place of the dead, except those who act under the due process of law, or who procure the permission to open the graves and remove the body, from the surviving husband or wife, or the next of kin of the deceased, and of the person having control of such grave. Why, the court asks, should it be thought that the law should apply to those only who open a grave, or procure it to be done, and have removed dead bodies, for purposes of medical or surgical knowledge, or for purposes of larceny of anything buried with the body? If a surgeon can be convicted for employing a person to open a grave and remove therefrom a dead body, his purpose being to advance medical and surgical science, again it asks what reason can be urged gainst the conviction of persons who command a grave to be pened and the body to be removed because the lot of land on which the deceased has been buried is not paid for by his next f kin? It is hardly necessary to add, the court affirms a conviction of the defendants in this case.

New York as a Business Community and Dispenser of Charities.—The Controller of the State of New York in a recent report points out that the per capita cost of government in New Jersey is $1.60; in Pennsylvania $2.42; in Massachusetts $3.48; while in New York it is $4.49. To this statement objections have been made regarding the basis of comparison and the unreliable factor in governmental figuring in general, but when the Controller indicates that in seventeen years the number of State commissions and departments has been increased by thirty-six, and that the State expenditures, which in 1881 were $9,378,214, amounted in 1897 to $26,962,705, he inevitably raises the question whether there has been a corresponding return to the people in security and happiness. "The average citizen," says a secular contemporary, "is little, if any, better off, so far as the State government is concerned, than he was in 1881, and there has been no such increase in population as to warrant a trebling of expenses." "So long as it is practical," continues this authority, "the people will not object to the cost. What they do object to is the building of palaces for public institutions. The governor himself has spoken of this abuse, and spoken wisely. We want our dependents to have good care, and even some luxuries, but we do not want money wasted on great piles of architecture for the glory of some small town and to flatter the vanity of managers." Thus it appears that neither the public nor even its meek element, the medical community, are receiving the benefits to which they are entitled, while the objects of their care and indirect charities are not proportionately grateful.

Fruit as a Food for the Aged.—Sir Isaac Holden, who recently died in his ninety-first year, was neither a teetotaler nor a non-smoker. Sir Isaac was a man with theories. According to him the two great essentials for those who would live long and be healthy, are plenty of fresh air and plenty of fruit. His rule was never, if he could help it, to spend less than two hours a day in the open air. When he entered his first situation he said to his employer that he would be glad to have an hour daily in the afternoon for a walk. If granted he would not ask for any holiday, or would make up otherwise for the time so spent. This was agreed to. Sir Isaac took his walk daily, and to this, he used to say, he owed both health and fortune. In addition to fresh air he believed in plenty of fruit. Sir Isaac was not a vegetarian. It was not meat but bread from which he abstained. Like Wesley, whose "Natural Philosophy" he studied when a boy, he saw in farinaceous food a thing to be avoided by the elderly. "I take for my breakfast," he said a few years ago, "one baked apple, one orange, twenty grapes, and a biscuit made from bananas. My midday meal consists of about three ounces of beef or mutton, with now and again a half cupful of soup. If I take a little fish, I take so much less meat. For supper I practically repeat my breakfast menu." The orange was his favorite fruit. Wine he eschewed; but on returning from the House of Commons to Queen Anne's mansions he had a tumbler of whisky and hot water before going to bed. He took no drink with his food, and this obliged him to masticate well. He smoked two or three cigars a day, from which he used to say that he derived both comfort and benefit.—*The Life Bulletin.*

The Ohio Colony for Epileptics.—The colony for epileptics at Gallipolis, Ohio, was instituted in 1893, and Dr. H. C. Rutter has, in a late number of the *Charities Review*, given an interesting account of the methods pursued there and the beneficent results achieved. He calls attention to the improvement in personal appearance and manners, produced by the mere fact of association in which a patient who has been allowed in his isolated home to pay no attention to the desires or feelings of others finds that he must exercise self-restraint; "the social influences of the institutions are manifest even in the most degraded, and especially in the younger patients." Those who have had an epileptic in the family know what a burden of care is imposed by the constant necessity of watchfulness lest the patient fall in some spot where there are hidden dangers, or from high flights of stairs, etc. Dr. Rutter calls attention to the safety that comes from many of them being together. The onset of a paroxysm is marked by a peculiar cry, and in the colony the instant that cry is heard all else is dropped and the other patients rush to the aid of the one attacked and the result is that there is seldom a serious accident. In Gallipolis no serious accident has occurred for more than two years among the more than eight hundred persons treated; and to show the value of this brotherly care, it is stated that among the 200 patients who have made temporary visits to their homes during that time no less than fourteen have met with fatal accidents and several others with serious ones. Taking all the patients in any one of these colonies together there is a great increase of happiness, and the weary unoccupied hours are lightened for them by employment, of which there are many kinds. The number of attacks have been reduced more than 300 per cent. among Dr. Rutter's patients, and at the close of the last fiscal year fifteen patients were discharged cured, *i. e.*, more than two years have passed since the last attack.

College of Physicians and Surgeons, New York. The following changes in the faculty are noted in the *Columbia University Bulletin* for December: James Ewing, M.D., has been made instructor in clinical microscopy; Charles Norris, M.D., tutor in pathology; Frederick S. Ward, M.D., William R. Williams, M.D., and Frederick H. Floy, M.D., assistants in normal histology; William T. Neuman, M.D., assistant in bacteriology; Francis C. Wood, assistant in clinical microscopy; George P. Biggs, M.D., demonstrator of pathology. The new course in clinical microscopy, for fourth year students, has been inaugurated under the direction of Dr. Ewing. This is the first year in which hospital clinical instruction to small sections of students has been given, and the fourth year students express great satisfaction at the courses now under way. The chief feature of this instruction is the bedside study of disease, each student watching the progress of a number of patients in the hospital wards at Bellevue, getting full records of the cases from day to day, and having all the advantages of observation which are obtained by the resident staff in the hospitals. The increased facilities for instruction at the Sloane Maternity Hospital are also highly appreciated by the students. In the department of diseases of children, Professor Jacobi has added to his regular weekly clinic a new weekly hour, Fridays at 3 P. M., in the St. John's Guild Hospital, 155 West 61st street, to which he has been invited by the Board of Governors, to take classes of students for bedside instruction. The alumni and friends of the University are, however, well aware that systematic and thorough bedside instruction can not be attained before the college has its own hospital with daily attendance. The attention of alumni and friends is called to this fact in the same spirit in which the subject was emphasized by President Low in two of his annual reports. In addition to the regular clinic in orthopedic surgery, held by Professor Gibney, a special course to students, in sections of ten men each, is given by him this year for the practical demonstration of the fitting of surgical apparatus to deformities. Dr. Watson L. Savage was appointed advisor in physical training in June, 1897. During his college course at Amherst, Dr. Savage was very prominent in athletics. For several years he has been engaged in the work of physical training. Dr. Savage served three years on the Amherst Athletic Advisory Committee, and was medical director of the Columbia College

Crew for two years. The new director brings to Columbia the results of a long and varied experience in physical training. The medical school had 729 names upon its student's registry on Nov. 1, 1897.

A Missionary Hospital in the North.—The Dynevor Hospital has been established on the St. Peter's Indian Reservation in Winnipeg, chiefly for the benefit of a community of about 1200 families of red men. The sickness-rate having of late years been very heavy the missionaries of the Church of England opened a small hospital in March, 1896. This charity now consists in a dispensary, a surgery, two wards capable of holding a dozen patients, also a small emergency ward and several rooms that can be utilized for patients, when the other wards are overcrowded. The medical superintendent is Dr. Rolston, a retired fleet-surgeon, who served twenty years in the British Navy in the Baltic during the Russian war, on the North American, West Indian, Australian, and the New Zealand stations. In Canada, he volunteered as surgeon to Major Boulton's scouts, and at Fish Creek and Batoche, etc., he was conspicuous for his bravery on the field. During the first year of the hospital's existence over 1300 patients have been under treatment, thirty-two of these actually inside patients, although this latter gives a very imperfect idea, as many who ought really to be in the ward prefer to sleep away, and many during summer months come from long distances and camp (with their families) close to the hospital, all of whom require feeding, washing and nursing, more or less.

Camphor Intoxication.—The absolute fatal dose of camphor is said to be seven grams, states Barkholz in the *St. Petersburg Med. Woch.* of January 1, and then reports a case in which a young married woman took fifteen grams at once, in water, and experienced no ill effects for a couple of hours, when suddenly convulsions and acute mania developed. He was hastily summoned and applied the stomach-pump, giving later three grams of chloral and the same amount of potassium bromid. The patient rallied and recovered completely in two or three days. He explains the non-fatality of the dose by the probability that a large part of the camphor must have passed into the intestines during the two hours before its effects were felt. Here it was chemically changed into camphorol, and this was then oxidized into camphor-glycoron acid, which no longer possesses the intoxicating properties of camphor. Glycoron acid is a product of dextrin and other carbohydrates, and he mentions that in this case the patient had eaten a large amount of carbohydrates at supper, after taking the camphor. He therefore suggests that sugar administered in large quantities in camphor intoxication would be an efficient antidote. The symptoms of the present cases corresponded typically to the experimental tests with camphor described, only the convulsions were less prominent than the psychic disturbances.

Disturbed Innervation the Cause of Lack of Compensation in Valvular Insufficiency.—A series of experiments at Budapesth, producing artificial valvular insufficiency and dividing the vagi, seem to demonstrate that alterations in the nervous system play an important part in preventing compensation in cases of valvular insufficiency. The vagus is the intermediary between the heart and the extracardiac nerve centers. After both vagi were severed in these experiments, the special nerve mechanism of the heart was sufficient to carry on the work of the organ unaided for a certain length of time, but this period was much shortened if, in addition to the severed vagi, there was also valvular insufficiency. Likewise, the heart carried on its work in spite of valvular insufficiency, when the innervation was undisturbed and even one vagus was left. The same results were obtained alike with cats, rabbits and dogs, leading to the inference that the cause of lack of compensation in a person with valvular insufficiency is some functional or anatomic disturbance in the cardiac innervation, rather than in the cardiac musculature. Numerous clinic symptoms confirm this assumption: arhythmia, etc., and Ott's statement that he found the nerve cells degenerated in cases of "incompensation."—*Deut. Med. Woch.*, January 6-13.

Tissue Changes Effected by Tuberculin.—Kasparek records the results of an important series of investigations into the action of tuberculin on healthy and tuberculous animals. His first object was to determine in some measure the relation between the reactions produced by different varieties of tuberculin. Preparations were made from human and avian tuberculosis by concentrating six to eight weeks' cultures to .125 or .1 per cent. of their bulk. It was found that eight times the quantity of bird tuberculin was required to produce the same effect in the experimental animals (guinea pigs) as a given dose of the human product; a good deal depended on the body-weight of the animal, and guinea pigs of as nearly as possible the same weight were selected in consequence. These precautions having been taken, the author was able to demonstrate that the tuberculin reaction was constant in diseased as distinguished from non-tuberculous animals. He next investigated the length of time which elapsed after infection with tubercle bacilli before the reaction was obtainable. When infection was accomplished by the injection of bacilli into the abdominal muscles the reaction appeared in thirty-six to forty-eight hours, at a time when no macroscopic lesion could be detected, though the bacilli were multiplying at the seat of injection. The fact that no reaction takes place at first shows that it is an actual tissue change in the animal and not the mere presence of bacilli which renders it so susceptible to the influence of tuberculin. This is confirmed by the fact that the substitution of an equal amount of living tubercle bacilli for the tuberculin gives no reaction whatsoever. When the tuberculous infection was effected by means of inhalation no reaction was obtained until after six daily exposures of an hour each; whenever it was obtained the animal eventually succumbed to tuberculosis. This shows the extraordinary diagnostic value of tuberculin. The last series of experiments consisted in the injection of tuberculin into the animals which had been weakened previously by diphtheria toxin. Fever resulted in these cases but was not of the same type as that constituting the tubercle reaction, than which it lasted at least five or six hours longer. Kasparek's conclusions are as follows: 1. The tuberculin reaction occurs very early (thirty-six to thirty-eight hours) in animals infected with tubercle, as soon, in fact, as the slightest amount of tissue change has taken place. 2. The activity of a tuberculin preparation varies with the source from which it is obtained. 3. The fever evoked by tuberculin in animals weakened, for example, by diphtheria toxin is distinguishable from the typical reaction by its greater duration.—*British Medical Journal.*

The Prospectus of the International Bibliographic Bureau has been received. Its aim is no less than to supply subscribers with a comprehensive card catalogue on the decimal system of all scientific publications, past, present and future on zoology, anatomy and physiology. It is not a commercial undertaking; the cost of subscription will merely cover the necessary expenses, never over two francs per hundred cards, and probably one franc or less, depending upon the number of subscribers. They will be supplied with the card catalogue on white cards. Brown duplicates are furnished on demand, which are substituted for the white cards as you acquire possession of the article or book designated on them. The white cards thus removed serve as a separate catalogue of your private collection. The bureau is associated with the "Bibliographia Anatomica" and the "Bibliographia Physiologica" edited by Prof. C. Richet of Paris. The price of the various parts of these are from six to ten francs each in book or card form. All anatomists, physiologists and zoologists are urgently requested to co-operate with the bureau, and notify them of their publications as soon as they appear. This appeal is endorsed by many scientific investigators "especially Professor Bowditch." The decimal card catalogue system is too well known to describe, but we add an example to show its usefulness. If investigating various methods of counting the blood corpuscles we turn to Physiologia 612; under this we find sanguis, circulatio 612.1; proprietates generales sanguinis 612.11; globuli 612.111, and numeratio globulorum 612.111.2, under which head we find the full titles of all the articles that have appeared on the subject, including those by Bleibtreu, Eykman, Marschner, Oliver and others with exact data where they are to be found, and mention of those among them which are replies to others.—Concilium Bibliographium, Zürich, Oberstrass.

The New Formalin Test for Bile Pigments.—Prof. A. Giuzinski writes to the *Wien. klin. Woch.*, December 30, that if a little formalin is added to human or animal bile it turns green in twenty-four hours, but if boiled for a few minutes, the emerald green appears at once. This can be changed into an amethyst violet by adding a few drops of any mineral acid, especially hydrochloric. Testing to see to which of the bile pigments this coloration could be ascribed, he found that if mixed with chloroform, the green changed to violet only when biliverdin was present. He also found that biliverdin, unlike the other bile pigments, showed two absorption bands in the spectrum after the addition of the formalin and hydrochloric acid. Alkaline solutions of bile pigments show a still more decided green in contact with formalin, changing to blue as the hydrochloric acid is added. To test urine for bile pigments, he has an equal quantity of urine in two test tubes, and boils one, after adding one-third formalin, when it turns green. Pouring this into a third test tube he adds a few drops of hydrochloric acid, when the color changes to violet. This test is extremely delicate, showing even in a 1 to 100-140 solution. This experience has convinced him that the bile pigment in icteric urine is almost exclusively biliverdin.

The Intracranial Circulation in some of its Aspects.—As the result of an experimental inquiry Elder (*British Medical Journal*, Nov. 13, 1897, p. 1414) has arrived at the following conclusions: 1. In the unenclosed skull there are two very evident forms of pulsation of the brain: *a*, the arterial; *b*, the respiratory; the former produced in the arteries, the latter in the veins. 2. In the closed skull the venous side of the circulation is of the greatest importance, and respiration acting through the veins takes an important role in the intracranial circulation. 3. During inspiration in the open skull the aspiration of blood from the cranial veins is accompanied by compression of the vessels and retraction of the brain. 4. In the closed skull a similar withdrawal of blood from the veins occurs, accompanied by decrease in the intracranial pressure. 5. There is no flow of cerebrospinal fluid from the spinal cavity to the intracranial cavity, either with respiratory movement or with arterial pulsation, as has usually been supposed. 6. In all probability, accompanying the emptying of the large veins during inspiration, there is dilatation of the arteries. (This may be accompanied by an increased rate of flow in the carotid artery as compared with the other arteries in the body above the level of the diaphragm, which are otherwise under somewhat similar conditions.) So during expiration the dilatation of the intracranial veins will be accompanied by narrowing of the arteries. The flow of blood through the capillaries will remain constant. 7. With arterial pulsation lateral pressure is exerted on the intracranial veins, leading to an increased flow of blood from the skull. 8. These movements of the veins, with respiratory movements and with arterial pulsation, will occur in the large veins leading into the intracranial venous sinuses, the walls of which are themselves incompressible. 9. Similar movements of alternating compression and dilatation of the arteries and veins probably occur also in the spinal column, the cavity of which is to be looked on as being practically closed, just as the cranial cavity is. 10. In all cases of sudden increase of pressure affecting both cranial and spinal cavities there will practically be no variation in the quantity of blood present in the cavities. There will only be either: *a*, a variation in the amount of blood in one side of the circulation as compared with the other, arterial at the expense of the venous, or vice versa; or *b*, an alteration in the rate of flow through the capillaries. In rises of pressure lasting some time there may be alteration of the quantity of blood inside the cavities, resulting from alteration in the rate of secretion or of absorption of cerebrospinal fluid. 11. The point of importance in alterations of pressure inside the skull is the rate of flow through the capillaries. Steady flow through the capillaries, "adiæmorrhysis," as it has been called by Geigel, may go on under very low intracranial pressure or under comparatively high (Hill). 12. Increased intracranial pressure from an effusion into the cranium; *e. g.*, a hemorrhage, leads first of all to a flow of cerebrospinal fluid from the cranial to the spinal cavity, so giving a respite for a certain length of time to the intracranial circulation. If the effusion goes on, there is first, compression of the larger veins, which leads, after it has taken place to a certain extent, to interference with the flow of blood through the capillaries, and if the pressure continues to rise, to actual compression of the capillaries and true anemia of the brain. 13. When tracings are taken of the pulsations of the brain, with rise of pressure two forms of pulse wave may be seen, 1, when wave is less ample and still anacrotic, as it is under normal conditions; 2, where wave is higher and tends to become catacrotic. The former occurs much more frequently than the latter, and seems to be present in what may be termed "passive" increase of intracranial pressure, that is, when the intracranial pressure is increased from alteration in the circulation in the rest of the body. 14. In some conditions the intracranial circulation seems to vary independently of the circulation elsewhere. This would tend to show that although the blood vessels of the brain are not generally controlled from the general vasomotor center there must be some local mechanism for altering their caliber.

Strangulated Hernia in Infancy.—Strangulated hernia in infancy is of rather uncommon occurrence. Among 139,000 children treated in various hospitals, Stern (*Centralblat für Chirurgie*, 1894) found no record of any case of herniotomy for strangulation; and of 1,900 cases operated upon for strangulated hernia in various hospitals, but thirteen occurred in children. Nussbaum operated upon two cases among a total number of 54,000 children under his care. A study of the statistics that have been collected shows that operations are more frequently called for during the earlier months of childhood than during the later, and that the symptom most commonly observed in children, or perhaps what should be called an associated condition rather than a symptom proper, is retention of urine. Reports of two cases of strangulated hernia in infants have recently appeared. The first is made by Moynihan (*Lancet*, Sept. 25, 1897, p. 788), who relates the history of a male child, twenty-two days old, in whom right-sided inguinal hernia had been noted from birth. Following an attack of crying the swelling increased in size, and attempts at reduction were unsuccessful. Within an hour the child had begun to vomit and had continued to do so at intervals that were growing gradually shorter. For about twelve hours no urine had been passed. Examination disclosed the presence of a tense inguinal hernia on the right side of approximately the size of a billiard ball. Attempts at reduction with and without chloroform anesthesia were unsuccessful, and operation was at once undertaken. The sac of what proved to be a congenital hernia, contained a little fluid and about ten or twelve inches of distended and discolored small intestine, with a point of strangulation at the neck of the sac. The inguinal rings were stretched with the finger and the gut returned, the operation being complete by performing a radical cure by Ball's method and by fashioning a tunica vaginalis from the lower part of the sac. A dressing of collodion and gauze was applied. The child passed urine during the operation. The after-history was uneventful and recovery was speedy. The second case is reported by Cuff (*British Medical Journal*, Sept. 25, 1897, p. 811). The patient was a badly nourished and weakly child, 5 months old, that had been vomiting continually for thirty-six hours. There was complete constipation and a large hernia was present on the left side. The latter had been present from birth and was gradually increasing in size. The more recent enlargement was attributed to cough from which the little patient suffered. Examination disclosed the presence of a large, tense mass, which filled the left side of the scrotum and could not be reduced. The child looked extremely ill, kept up a continual cry, had a small, rapid pulse and vomited intermittently. The legs were kept drawn up on the abdomen. The vomit was a thin, yellowish fluid, free from fecal odor. The temperature was subnormal. Taxis failing, herniotomy was resorted to. An incision was made above and parallel to Poupart's ligament, the sac being opened and found to contain clear fluid and seven or eight inches of congested gut, which was tightly held at the neck of the sac at the internal ring. After incision of the ring and inspection of the gut, the latter was returned, with some difficulty, to the abdomen. The upper part of the sac was then dissected off the elements of the cord, a small portion left attached to the testicle and the upper part twisted up to the internal ring, its end being then brought through the internal pillar and attached there with a catgut suture. The wound was closed with a continuous silk suture and sealed with collodion and powdered iodoform. Small quantities of warm diluted milk were given at short intervals, and the child was dismissed on the twenty-second day.

The "Baldeo" Treatment of Yellow Fever.—Pena y Buelta of Trinidad, Cuba, announces that he has cured thirty-three in thirty-four severe cases by the following method: A pail (balde) of tepid water is placed at the bedside, with a kilogram of sodium sulphate, a tablespoon and a tumbler. Three tablespoonfuls of the sulphate dissolved in a tumblerful of the tepid water are administered to the patient; then, at an interval of one or two minutes he drinks other tumblerfuls, each alternate one containing a tablespoonful of the sulphate, until he has taken ten tumblerfuls and copious vomiting has been produced, with mechanical compression of the liver and gall bladder by the efforts at retching. A quarter of an hour after the vomiting has ceased repeat the process again; then half an hour after the last vomiting give the patient half a glass of water, not tepid, containing a spoonful of the sulphate; and fifteen minutes afterward another similar glass. If vomiting is produced, repeat at the same intervals until vomiting has ceased. This causes purging which cleanses the intestines. Six hours after the first attempt repeat from the beginning. Continue in this manner until the fever has vanished, using no other medication and allowing no food nor drink except water. "It will cure if commenced in the first four days of the disease, and it will cure many even at a later period. Three or four repetitions are sufficient; the eyes lose their excessive brilliancy and the skin feels cool to the hand; the patient is cured."—*El Monitor Médico*, No. 245.

Infant-Feeding.—From a survey of the attitude of the medical profession upon the question of infant-feeding, Holt (*Archives of Pediatrics*, Vol. XIV, No. 11, p. 816) summarizes as follows the points that may be considered as well established: 1. Good breast milk is the best infant food. 2. No substitute for breast milk can be trusted that does not furnish essentially the same elements, fats, sugar, proteids, etc., as breast milk. 3. These elements are found only in the milk of other animals, cow's milk being the only one that is available for general use. 4. Cow's milk requires some modification before it is fed to infants, because the proportions of the different elements, fat, sugar, etc., are not the same as in breast milk; and because some of these elements, notably the proteids, are not identical with those of breast milk. Among the important questions in infant-feeding that are still under discussion are: 1. Whether all milk should be heated and, if so, to what temperature and for what time; whether the purpose shall be mainly to destroy pathogenic germs, or to improve the keeping properties of the milk; also whether heating improves its digestibility or the contrary. 2. What the standard of a "clean milk," bacteriologically speaking, shall be; also whether the exclusion of pathogenic germs by care and intelligence and a reduction in the number of saprophytic forms by scrupulous cleanliness in milk-production may not furnish what is needed; clean milk a few hours old, which will have all the advantages of Pasteurized milk without any of its possible disadvantages. 3. Whether such accurate modification as is measured by variations of a small fraction per cent. is really essential or whether less accurate modifications may not give equally good results, provided the original milk is the best possible. Much is still to be learned regarding precise indications for varying the proportions of the different elements in milk-modification.

Louisville.

WATER.—Louisville is in a fair way to soon enjoy the luxury of a filtered city water supply. The water during the recent high stage of the river has been of a chocolate color, and was about the consistency of thin molasses, so heavily loaded was it with mud. This is the city's experience with every high water and the assurance that we will have filtered water before many months is most welcome news. The investigations which the water company have been conducting at the pumping station have proven the sand filter to be the most efficacious, taking into consideration the rapidity of work, and the state of the water at such seasons as this. The plan is to utilize the two big basins now used as reservoirs, as subsiding basins, where the water will be allowed to settle sufficiently to relieve it of much mud and other impurities. These basins are high enough to allow the water to pass mechanically into the sand filters, which will be above the clear water basins. From the clear water basins, into which the water runs from the sand filters, the water will be pumped into an immense stand-pipe, of sufficient height to throw the water over the highest buildings in the city. There will be from eighty to one hundred sand filters, each from eighteen to twenty feet in diameter, and with three feet of sand in the bottom of each to catch the impurities before the water reaches the clear water reservoir, which will have a capacity of 25,000,000 gallons. The water will be treated chemically as it passes to the subsiding basins, this coagulant causing the mud to sink to the bottom and assist the filters of relieving the water of both impurities and bacteria, it being estimated that less than 50 per cent of bacteria will remain after the water reaches the mains. The entire cost of the improvements will be in the neighborhood of $300,000.

Philadelphia.

THE COLLEGE OF PHYSICIANS.—The subject of the utility of placarding houses in which cases of scarlet fever and other infectious diseases occur has recently attracted considerable attention, and it was brought up on the second instant before the college by a resolution which had been referred from the December meeting, viz., "That a committee of three be appointed by the president of the college to wait upon the board of health and represent to it the sense of this college upon the subject, and to ask that the board cease its present practice of placarding all houses in which there occur such cases of contagious disease." The question was fully discussed, the subject being opened by a paper by Dr. Arthur V. Meigs entitled "Reasons why the Placarding of Houses in which are Persons Suffering with Scarlet Fever and some other Contagious Diseases should not be continued." The discussion was opened by Dr. James Tyson. At the same meeting Dr. George Enly Shoemaker read a paper entitled "Some Results of a Series of One Hundred Abdominal Operations;" and Dr. James Hendrie Lloyd reported a "Case of Cysticercus Cellulosæ of the Brain." Dr. Henry W. Stelwagon exhibited two cases of alopecia areata.

YELLOW FEVER IN THE DELAWARE.—A slight clashing of the national and local health authorities has arisen from the fact that the U. S. Quarantine Station at Reedy Island being temporarily out of service, an infected vessel proceeded up the river until boarded by the State quarantine officials at Marcus Hook, and the latter immediately took charge and proceeded to enforce the full regulations. The schooner *John H. Tingue*, after unloading a cargo of coal at Kingston, Jamaica, had gone to Black River and taken on a load of logwood for Chester. Three of the crew were found to be ill with symptoms of mild yellow fever and they were removed to the hospital. The rest of the crew and ship were cleansed and disinfected, small fumigators generating formaldehyde being used. The government quarantine station at Reedy Island was at once reopened, January 21, and the officials sent a formal request that the ship be sent down the river and placed in their charge, which the State authorities politely declined to do. It was explained that the ship had passed the Marcus Hook government station during very stormy weather and had passed the Reedy Island quarantine because it was out of service.

DIPHTHERIA.—The yellow placard indicating the gruesome fact that "Diphtheria" is the unwelcome guest in the household, seems conspicuously out of place upon a physician's door post, and yet during the past week the friends of Dr. S. Weir Mitchell have been pained by seeing the formal notice of the Board of Health standing guard at his front door, unfortunately soon to be attended by the black flag which announced the death of his only daughter, a young lady just entering society. It is reported that Mrs. Mitchell has also been suffering with a mild attack of diphtheria. The sympathies of the entire profession and community are with the distinguished author and teacher in his great affliction.

Detroit.

AT THE REGULAR MEETING of the Detroit Medical and Library Association January 31, Dr. H. O. Walker read a paper on "Gastrectomy." After referring to Schlatter's unique case, which the Doctor denominated a "surgical freak," and reviewing the meager literature on this subject and commenting upon the use of the term gastrectomy as a misnomer for pylorectomy, the essential points in the surgical anatomy were set forth. Stress was laid upon the abundant arterial and venous supply, the numerous anastomoses of these vessels, the omental attachments on every side and the difficulty to be experienced in manipulating the duodenum or pulling down the esophagus without injuring adjacent organs. A series of twelve experiments upon dogs was reported in detail with results thereof. In two cases the Murphy button was used in joining the esophagus and the duodenum. In another case it was tried, but experiencing difficulty in this and the remaining cases the duodenum was closed either by a purse-string suture or by two rows of continuous sutures and an anastomosis with catgut sutures, made of the lower end of the esophagus at right angles with the lower end surface of the duodenum or upper end of the jejunum. The operations were performed under ether anesthesia. Strict asepsis was insisted upon, extreme care used in preventing and checking hemorrhage, but the wounds all closed without drainage. The subjects all died at intervals of from three to forty-eight hours after the operations. Fluid from two to thirty ounces was found in the cavity postmortem. In two cases the wounds were observably septic. In all the others that lived a sufficient length of time the rectal temperature and pulse were found to increase above the normal, indicating sepsis. After describing in detail the technique used, the Doctor concluded that in his experience hemorrhage was more easily controlled in the human subject than in dogs; that the operation is too dangerous for general application; that cases are rare in which it will be adopted, and that, judging from the history given, Schlatter's case was peculiarly adaptable. Success in the removal of cancerous growths of the stomach will depend upon early diagnosis. Dr. Walker presented a specimen of malignant growth of the cecum which he had that day removed from a man aged 38 years, with the following history: Patient observed in January, 1897, that his health was impaired from some cause unknown to himself or attending physician. In February a diarrhea set in and continued more or less until operated upon. In May a small tumor was felt through the abdominal wall above McBurney's point, when his physician diagnosed appendicitis. Jan. 27, 1898, the date when the Doctor first saw him, he presented a suspicious malignant cachexia with emaciation and persistent diarrhea. Tumor could be felt beneath abdominal wall without difficulty. At no time was the tumor painful. The method of operation was as follows: Straight incision six inches in length made on right border of rectus muscle. Digital exploration revealed tumor involving posterior wall of colon, extending to within an inch of ileocecal valve and upward about seven inches. The adjacent mesentery was also involved. Enucleation was tedious though hemorrhage was slight. Fourteen inches of the colon was extirpated and about two and one-half inches of the ileum. The end of the colon was closed and a right-angled implantation of the ileum into the side of the colon was made with catgut sutures. The Doctor stated that the fatality in this operation was great, about 40 per cent., largely due to shock; in fact, in several instances collapse of patient during operation was so great that it became necessary to desist from further interference. The growth had not as yet been examined microscopically, but clinically there could be no question but that it was carcinomatous.

AT THE REGULAR MEETING of the Wayne County Medical Society February 3, Dr. R. Bishop read a paper on "Special Treatment of Rectal Diseases." The Doctor believes that diseases of the rectum are too much neglected by the medical profession and so errors in diagnosis are quite frequent. He would have more thorough examination of the rectum in all cases where symptoms point to disease of the lower bowel.

AT A RECENT MEETING of the Faculty of the Medical Department of the Michigan University the Board of Regents was asked to instruct the superintendent of the University hospital to exclude from free hospital treatment those who are abundantly able to pay for medical service. To get an expression from the physicians of the State on this subject the different medical societies were asked to bring the matter up in regular session. This question came up before the Detroit Medical and Library Association on January 31 and before the Wayne County Medical Society on February 3, each society being unanimous in its condemnation of the methods now in vogue in the University Hospital and passed resolutions asking the Board of Regents of the University to comply with the request made by the faculty.

Hospitals.

OPENING OF THE MAITLAND HOSPITAL AT NEW YORK CITY.—The opening of the New York Hospital for scarlet fever and diphtheria, at the foot of East Sixteenth Street, took place December 30. The hospital consists of two pavilions, forming the letter "U," each two stories in height, and built of pressed brick. The laundry and fumigating apparatus are in the center. A special feature is the solarium for the use of convalescent patients. It is situated on the south side of the building and has a wall of heavy plate glass. There is also a roof-garden. The beds are of iron, the chairs and table of agate, and the shelves of glass. The hospital was open for patients on the first of January. There are no free beds.

EVANSTON, ILL., has just completed her new hospital, a three-story structure, at a cost of $35,000.——The Cambridge (Mass.) Hospital is the recipient of $1,000 in memory of a former patient.——The clinic room of the Notre Dame Hospital, Montreal, Quebec, was destroyed by fire January 29. The loss, $5,000, was covered by insurance.——The will of the late Mrs. Josephine Mellen Ayer, widow of the J. C. Ayer, of patent medicine fame, leaves $50,000 to the Pennsylvania Hospital, Philadelphia.——According to the will of the late Judge

John M. Scott of Bloomington, Ill., his estate of $250,000 is eventually to found and establish a hospital in that city.——Under the will of the late Charles H. Contoit, a wealthy New York bachelor, a large estate valued at more than $1,000,000 will fall to the benefit of nineteen hospitals and other institutions of relief and religion. Among the hospitals are St. Luke's Hospital, Tremont Home for Consumptives and St. Mary's Hospital for Children. These various beneficiaries are to receive share and share alike of the large residuary estate.

Societies.

The following meetings are noted:

Illinois.—Chicago Medical Society, February 2; McLean County Medical Society, Bloomington, January 28.

Massachusetts.—Norfolk District Medical Society, Brookline, January 25.

Michigan.—Grand Rapids Medical and Surgical Society, January 31; Northeastern District Medical Society of Michigan, Flint, February 4; Washtenaw County Medical Society, Ann Arbor.

Missouri.—City Hospital Medical Society, St. Louis, February 3; Jackson County Medical Society, Kansas City, January 27; St. Louis Medical Society of Missouri, February 5.

New York.—American Laryngological Association, Eastern Section, Albany, January 24; Otsego County Medical Society, Oneonta, January 18.

Ohio.—Northern Tri-State Medical Association, Toledo, January 27.

Pennsylvania.—Clarion County Medical Society, East Brady, January 25; Lycoming County Medical Society, Williamsport, February 1; McKean County Medical Association, Kane, February 2; Philadelphia County Medical Society, Philadelphia, January 26; Susquehanna County Medical Society, Halstead, February 1.

Texas.—Corsicana Medical Association, January 25.

Virginia.—Richmond Academy of Medicine and Surgery, January 25; Seaboard Medical Association, Norfolk, January 18.

Wisconsin.—Rock County Medical Society, Janesville, February 4.

CHANGE OF ADDRESS.

Archer, J. A., from Freeport, Ill., to De Lamar, Nev.
Ade, S. G., from 577 Fulton to 612 W. Madison St., Chicago.
Converse, E. D., from 100 to 126 State St., Chicago.
Dubs, R. S., from 100 to 92 State St., Chicago.
Foskett, W. A., from 1556 Milwaukee Av. to 298 Maxwell St., Chicago.
Jones, L. J., from 100 to 92 State St., Chicago.
Krotoszyner, M., from 41 6th St. to 700 Sutter St., San Francisco, Cal.
Looze, from Lincoln to Seymour, Wis.
Le Fevre, E., from Sidney, Ohio, to 828 Washington St., Boston, Mass.
Miner, S. G., from Jefferson Av. to 58 Cadillac Sq., Detroit, Mich.
Reynolds, G. S., from 711 Calvert to 809 N. Charles St., Baltimore, Md.
Spaulding, H., from 3141 Rhodes to 3851 Indiana Av., Chicago.
Schaefer, C. R., from 430 to 1202 Madison Av., Indianapolis, Ind.
Toron, M., from 637 Larabee St. to Palace Hotel, Chicago.
West, M., from Atlantic City to 722 Market St., Camden, N. J.

LETTERS RECEIVED.

Boroughs, I. H., Casstown, Ohio; Bennett, Arthur G., Buffalo, N. Y.; Brown, Mark A., Cincinnati, Ohio; Bradley, C. H., Minneapolis, Minn.; Brown, F. F., New York; Bowman, F. C., Duluth, Minn.; Berry, J. T. B., Brandon, Miss.

Collier, J. M., Plymouth, Mich.; Crothers, T. D., Hartford, Conn.; Craze, J. C., Lebanon, Pa.; Chase, Arthur H., Concord, N. H.; Cleaves, Margaret A., New York; Caldwell & Co., Jno., New York.

Douglas, Richard (2), Nashville, Tenn.; De Pew, H. H., Chicago.

Ehrhardt, H., St. Louis, Mo.; Elliott, H. G., New York.

Ford, Charles, New York; Frazier, W. C. & Co., Aurora, Ill.; Fischer, L., New York.

Gregory, C. L., Yreka, Cal.

Haven, O. D., Ravena, Ohio; Hunt, C. C., Dixon, Ill.; Hudson, R. D., St. Louis, Mo.; Hays, B. W., Gordonville, Mo.; Humphrey, Daniel, Lawrence, Mass.; Holmes, A. M., Denver, Colo.; Hummel, A. L. Adv. Agency, New York.

Jewett, R. D., Wilmington, N. C.

Knipp, H. E., Baltimore, Md.; Knapp, A. A., Brimfield, Ill.

Lucas, V. C., Cleveland, Ohio; Lerch, Otto (2), New Orleans, La.

Morrill, Chas. E., Nauvoo, Ill.; Marks, A. A., New York; McVey, W. E., Topeka, Kas.; Mills, H. R. Port Huron, Mich.; McKenzie, H. M., Elwood, Iowa; Merck & Co., New York.

Pantagraph Printing and Stationery Co., Bloomington, Ill.; Page, C. E., Boston, Mass.

Roop, H. B., Columbus, Pa.; Rio Grande Western Railroad, Salt Lake City, Utah.

Smok, C. W., Clarksville, Ohio; Sternberg, Geo. M., Washington, D. C.; Stokes, W. R., Baltimore, Md.; Squibb, E. H., Brooklyn, N. Y.; Stone, R. M., Omaha, Neb.; Sherwood, F. R., Chicago.

Taylor, R. H., Griffin, Ga.; Trade Advertising Co., The, New York.

Van Horne, A. K., Jerseyville, Ill.; Vedder, W. D., Mansfield, Pa.

Westcott, C. D., Chicago; Wingate, U. O. B., Milwaukee, Wis.; Walker, F. E., Iowa City, Iowa; Woodbury, Frank, Philadelphia, Pa.; Walker, H. T., Keokuk, Iowa.

PAMPHLETS RECEIVED.

Abuse of Medical Charity; Report to the Medical Society of the County of New York on Abuses of Medical Charity; Abstract of Proceedings of New York State Medical Association. By F. H. Wiggin of New York. Reprints from Medical News.

Angina Pectoris. By W. S. Connery of Saginaw, Mich. Reprinted from Medical Record.

Ano-rectal Imperforation, Surgical Treatment of. By Rudolph Matas of New Orleans. Pp. 100. Reprinted from Transactions of Am. Surg. Asso.

Cerebral Syphilis; Lues Venerea; Syphilis; Syphilis of the Innocent; Treatment of Syphilis; Non-venereal Syphilis. By Henry Alfred Robbins of Washington, D. C. Reprints.

Chloroform and Ether. By D. E. Keefe of Springfield, Mass. Reprinted from Boston Med. and Surg. Jour.

Clinical Studies of the Blood in Chorea. By Charles Howard Lodor of Chicago. Reprinted from Chicago Medical Recorder.

Congenital Phimosis. By Alex. C. Wiener of Chicago.

Deficient Excretion from Kidneys not Organically Diseased and Some of the Diseases Peculiar to Women, and Diseases of the Skin. By L. D. Bulkley of New York. Reprinted from Jour. Am. Med. Assoc.

Duties of Physicians to the Profession and their Relation to the Medical Charities of the District of Columbia. By Samuel C. Busey of Washington, D. C. Reprinted from Transactions Med. Soc. of D.C.

Electric Treatment in Gout and the Uric Acid Diathesis. By Robert Newman of New York. Reprinted from Medical Record.

Examination of the Urine as a Means of Diagnosis. By Theodore W. Schaeffer of Kansas City. Reprinted from Kansas City Medical Index.

Excessive Urobilinuria Following and Apparently Dependent on the Administration of Trional, by H. D. Rolleston; Intracardiac Thrombus Rising from the Fossa Ovalis, Projecting Through the Mitral Orifice and Giving Rise to Signs of Mitral Stenosis, by H. D. Rolleston and W. Ewart; Excision of the Cecum, by H. D. Rolleston and A. Marmaduke Sheild. Reprints from Clinical Society's Transaction, England.

Hematozoon Infections of Birds. By W. G. MacCallum of Baltimore. Reprinted from Johns Hopkins Hospital Bulletin.

Laporotomy for Diseases of Women from 1879 to 1889; Personal Experiences in Laparotomy; Diseased Ova. By Mary A. Dixon Jones. Reprints.

National Health Organization and Other Sanitary Needs of New Orleans. By Stanford E. Chaillé of New Orleans. Reprinted from New Orleans Med. and Surg. Jour.

Neurosis of Gout. By L. Harrison Mettler of Chicago. Reprinted from Medical Fortnightly.

Primary Sarcoma of the Pleura, Diagnosis of, from the Cells Found in the Pleuritic Exudate; Some Experimental Investigations as to Effects of Administration of Yeast Nuclein upon Leucocytes. By Aldred Scott Warthin of Ann Arbor, Mich. Reprints.

Pulmonary Tuberculosis; Fifty Cases Illustrating Successful Treatment. By W. H. Riley of Boulder, Colo. Reprinted from Modern Med. and Bac. Review.

Screw Worms in the Nose; Report of a Case of 207 Taken From. By Hal Foster of Kansas City. Reprinted from Kansas City Medical Index.

Strabismus in a Pure-blooded Negro. By Charles W. Kollock of Charleston, S. C. Reprinted from Ophthalmic Record.

Trade Pamphlets.

The Colorado Sanitarium. Illustrated. Boulder, Colo.

Treatise on Water Purification for Cities and Towns. New York Filter Mfg. Co., 120 Liberty St., N. Y.

Calendar. The Welch Grape Juice Co., Westfield, N. Y.

THE PUBLIC SERVICE.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from January 29 to February 4, 1898.

Major Charles K. Winne, Surgeon, leave of absence granted on surgeon's certificate of disability is extended two months on surgeon's certificate of disability.

First Lieut. John S. Kulp, Asst. Surgeon, will report in person on Feb. 22, 1898, to the president of the examining board appointed to meet at Vancouver Bks., Washington, for examination as to his fitness for promotion.

Major Egon A. Koerper, Surgeon, is relieved from duty at Ft. Crook, Neb., to take effect upon the expiration of his present leave of absence, and will then report in person to the commanding General, Dept. of the Platte, for duty as chief surgeon of that Department.

First Lieut. Benjamin Brooke, Asst. Surgeon, is relieved from temporary duty at the Army and Navy General Hospital, Hot Springs, Ark., to take effect April 6, 1898, and will then repair to Washington, D. C., and report in person on April 12, 1898, to the president of the examining board, for examination as to his fitness for promotion, and upon the completion of his examination will report in person to the Adjutant General of the Army for orders.

A board of officers to consist of: Lieut.-Col. William D. Wolverton, Deputy Surgeon General; Major John Van R. Hoff, Surgeon; Capt. Frank K. Keefer, Asst. Surgeon, is appointed to meet at Vancouver Bks., Washington, on Tuesday, Feb. 22, 1898, at 10 o'clock A.M. or at such time thereafter as practicable, for the examination of such officers of the Medical Department as may be ordered before it, to determine their fitness for promotion.

A board of officers to consist of: Col. Charles H. Alden, Asst. Surgeon-General; Major James C. Merrill, Surgeon; Capt. George D. DeShon Asst. Surgeon, is appointed to meet at the Army Medical Museum Building in Washington, D. C., on Tuesday, April 12, 1898, at 10 o'clock A.M. or at such time thereafter as practicable, for the examination of such officers of the Medical Department as may be ordered before it to determine their fitness for promotion.

The following named officers will report in person to the president of the examining board appointed to meet at the Army Medical Museum Building in Washington, D. C., for examination as to their fitness for promotion, and upon completion of their examinations will return to their proper stations: First Lieut. Alexander N. Stark, Asst. Surgeon; First Lieut. Charles Lynch, Asst. Surgeon; First Lieut. Edward L. Munson, Asst. Surgeon; First Lieut. Charles E. B. Flagg, Asst. Surgeon; First Lieut. James M. Kennedy, Asst. Surgeon; First Lieut. Guy C. M. Godfrey, Asst. Surgeon; First Lieut. William F. Lewis, Asst. Surgeon.

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ADDRESS.

THE OBLIGATION OF SECTION MEMBERS TO THE AMERICAN MEDICAL ASSOCIATION.

TOGETHER WITH A HISTORY OF THE SECTION ON LARYNGOLOGY AND OTOLOGY.

Chairman's Address delivered in the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY W. E. CASSELBERRY, M.D.
CHICAGO, ILL.

The honored custom of an address from the chair affords opportunities for suggestion looking to the welfare of our organization which would not find expression in any set paper or general discussion. I might with propriety and no little pride point to the expansion in recent years of the department of laryngology and otology and the influence wielded by this Section of the AMERICAN MEDICAL ASSOCIATION in the development of these sciences. I might dwell on the advantage of the fellowship and acquaintance which is engendered by our annual assemblies, the opportunities afforded to associate the personality of the author with the subject matter of his essay and to hear his defense if criticised in debate. But our present gathering is in the nature of a semi-centennial reunion and it is fitting, in fact it has been suggested by the Committee of Arrangements, that in each Section a brief historic sketch should be presented in recognition of the past and as a guide for the future. In the case of our own Section, one of the youngest, this history need not detain us long, and before proceeding therewith I would refer briefly to another topic: "The obligation of Section members to the ASSOCIATION as a whole," which seems equally appropriate at this fiftieth anniversary, as it particularly concerns the future welfare of the ASSOCIATION.

I have noticed on the part of Section members, a wide-spread disposition to refrain from participation in the proceedings of the general meetings. A few are overcome by modesty in the presence of men better versed in parliamentary tactics and perhaps, in years, their seniors; many are so engrossed in the strictly scientific aspects of medicine as to be more than willing to leave in other hands its material prosperity, while still others affect a disdain of what they are pleased to term "association politics." These sentiments are neither fair to the ASSOCIATION nor to yourselves, for as members of the general body you are not only responsible for, but bound by its action. The program reserves time for attendance and I would urge upon Section members the forethought to qualify in advance as voting delegates, to interest themselves in these meetings and to exercise the franchise. There, are discussed those larger and wider subjects relating to general medicine, surgery and sanitation, continued familiarity with which serves to broaden the mental trend, and there also are enacted resolutions pertaining to professional policy and ethical principles.

Some have decried the necessity for any "Code of Ethics" such as is formulated by the AMERICAN MEDICAL ASSOCIATION, but its observance in the past has maintained individuals in closer touch with the great professional body and facilitated on the whole the affiliation of State and county societies. But its purpose is unification, not discord, and while exemplary, in every article save possibly one, the unhappy fact remains that this single clause has served to estrange the members and sympathizers of a prominent New York medical organization, who honestly differ in opinion. I am not presuming to pass upon the propriety or impropriety of this clause, the point I urge being that in order to secure adjudication of this and other important questions by an actual or representative majority of the ASSOCIATION, the Section members should participate to the fullest extent in the proceedings of the general meetings. The very men who find their highest interests in the Sections, those most potent in promoting the satisfactory numerical and scientific status, which on this occasion we celebrate, are best qualified to judge of modern professional needs. On all important questions let them express a majority verdict and then let every member loyally acquiese.

Historical Sketch of the Section.—For several years prior to the formation of the present Section of Laryngology and Otology at Cincinnati in 1888, the upper respiratory tract had been represented in the Section of Ophthalmology, Otology and Laryngology, but under this composite arrangement the subject languished, for at the Chicago meeting in 1887, where your present chairman first acquired membership, only three papers pertaining to it were read. Meanwhile an agitation headed by Dr. W. H. Daly of Pittsburg, was in progress for the separation, not only of laryngology, but also of otology, from ophthalmology, and the coupling of the former together in accordance with natural affinities. There would have been no objection to the independence of laryngology, but one is curious to discover by what *finesse* the ophthalmologists were finally induced to part with otology in their organization, for at that time every ophthalmologist was also an otologist. I am indebted to Dr. Daly for the explanation. He says: "For some years I had labored to this end finding it quite impossible of accomplishment, but at Cincinnati, with the efficient aid of Dr. X. C. Scott of Cleveland, an ophthalmologist, or rather from his personal friendship for me, I got him to withdraw his opposition. Dr. Seiler was there and helped us much. At the election of officers there were fifteen or sixteen present. They thought I (Dr. Daly) should be the first president and I being very desirous of giving the new child a good start in the world, was anxious to have Dr. Ingals for secretary, and I made no mistake."

In the official record of the fourth day of the general meeting at Cincinnati in 1888, is found this entry: "Dr. Wm. Porter of Missouri and others called up the amendment to the constitution offered by Dr. Carl Seiler in 1884 and now asked for by the Section of Ophthalmology. The action was agreed to and a new Section of Laryngology and Otology was created."

The first meeting under the new organization was held at Newport in 1889, where the auspiciousness of the occasion was noted in an excellent address from the Chair entitled, "Marking an Era in Laryngology." At that meeting Dr. J. H. Bryan of Washington gave promise of the fame he has since acquired in the treatment of affections of the collateral sinuses of the nose in a paper on "Abscess of the Antrum." Dr. J. O. Roe of Rochester was one of the first to note the importance of the lingual tonsil under the title "Glandular Hypertrophy at the Base of the Tongue," while Dr. Jonathan Wright indicated the pathologic trend of thought, which has since distinguished him, in a study of "Nasal Bacteria in Health." Drs. Lawrence Turnbull, J. N. Mackenzie, C. W. Richardson, W. Freudenthal and others were represented, altogether ten excellent papers being contributed at the initial meeting eight years ago. A glance at our present program shows growth; this number of ten has been multiplied by eight, certainly a satisfactory development.

In the following year, 1890, at Nashville, Dr. J. O. Roe presided as chairman and the late Dr. F. H. Potter as secretary. The meeting is memorable chiefly by reason of "positively the last appearance of the ancient controversy over the identity or duality of croup and diphtheria. Fortunately Klebs and Löffler, by bacteriologic studies have made it unnecessary to longer discuss that point. In 1891, at Washington, Dr. Chas. H. Burnett made an early report on the progress of aural surgery in an important direction entitled, "Excision of the Membrana Tympani, the Malleus and Incus as a means of Treatment in Otitis Media Catarrhalis Chronica and in Otitis Media Purulenta Chronica." Dr. Carl Seiler served as chairman and Dr. A. B. Thrasher as secretary. In the following year, 1892, at Detroit, Dr. Burnett presided and terminated his address with this excellent injunction: "Let us assemble here, impart to one another what we know and aid one another in the search for more truth, for in the words of Lessing, 'Not by the possession of truth, but by the search after it are the faculties of man enlarged, and in this alone consists his ever growing perfection.'"

The meeting at Milwaukee, in the year of the Columbian Exposition, under the leadership of Dr. E. L. Shurly as chairman and Dr. J. E. Boylan as secretary, is memorable for a faithful adherence to a lengthy scientific program, notwithstanding the distractions of the World's Fair in a neighboring city. Dr. Herman Knapp's paper on "Cases of Empyema of the Ethmoid Cells and Sphenoid Sinuses" was one of the earliest and most convincing contributions to the study of ethmoiditis, a phase of rhinology since recognized as of transcendent importance.

The assemblies at San Francisco in 1894, Baltimore in 1895, and Atlanta in 1896, over which Drs. E. F. Ingals, J. F. Fulton and G. V. Woolen, respectively presided as chairman, and J. F. Fulton, T. J. Gallagher and M. R. Ward as secretary, are all of such recent memory as to render special mention unnecessary, except to testify to the enthusiasm, earnestness and equally high standard of their contributions to the great fund of medical lore.

Gentlemen of the Section of Laryngology and Otology now assembled in ninth annual session, may I trust that this brief record of our past may serve as an inspiration for the future. I see before me many familiar faces, men to whom I extend sincere assurances of appreciation for the high honor which they have conferred upon me, but I see also others, men who are identifying themselves for the first time with our Section, and to them I extend the right hand of fellowship with our warmest welcome. In the search for more truth, let us profit liberally by each other's experience and endeavor to realize Emerson's conception of power: "A cultivated man, wise to know and bold to perform is the end to which nature works."

ORIGINAL ARTICLES.

THE SO-CALLED BLEEDING POLYP OF THE SEPTUM.

Presented in the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY NORVAL H. PIERCE, M.D.
CHICAGO, ILL.

I have been constrained to select this subject for my paper because in looking over the literature I have found but few instances of American writers having recorded cases of this pathologic condition. That the subject is important is proven by the circumstances surrounding my first case, the history of which is given below.

The patient was a male child, 6 years old, living in the southern part of Illinois. Six months before I saw him he had been operated on for a tumor of the septum, which had bled at frequent intervals for two months previously. The neoplasm was diagnosed sarcoma, was removed with a snare, and the toxins used. There had been the usual reactions and after two months the child was pronounced cured. But the bleeding having returned, the child was brought to me. On examination I found a tumor the size of a large pea projecting from the septum on the left side two mm. from the floor of the nose and about at the point where the triangular cartilage joins the vomer. The attachment was pedunculate. The color of the tumor was dark bluish, intermingled with red. It bled freely when touched with a probe. The tumor was removed with the cautery snare. The bleeding was unusually profuse, but was easily controlled by pressure. As I suspected the nature of the case I did not cauterize the base any further. The subsequent microscopic examination confirmed my diagnosis. It was what is known as a bleeding polyp of the septum or *fibroma polyposum fungoides teleangiectodes* (*septi narium*).

The second patient was a maiden 15 years old, healthy and well nourished. She complained of discharge from the nose and recurrent hemorrhages which showed a tendency to correspond with her menstrual periods. On examination I found a tumor projecting into the left chamber from the septum a few millimeters above and a little anterior to the attachment of the former. It was the size of a French pea, markedly pedunculated and bled easily when touched with a probe. The tumor was removed, but not cauterized.

The patient disappeared from observation for a year. She then returned, with a history of frequent attacks of copious epistaxis. Indeed, in appearance she was quite anemic, and microscopic examination of the blood proved this to be a fact. Examination showed a recurrence of the tumor at the same place. It was again removed with a knife, and the base cauterized thoroughly with chromic acid. It did not recur, the epistaxis ceased and the patient immediately recovered from her anemia.

I present herewith microscopic slides from both of these cases. From the second I have a microphotograph.

We have then a subject that, viewed either from a theoretic or practical standpoint, is of especial rhinologic moment. We have not here a myxoma. This may be detected by its external appearance *in situ*. Again, we do not have the epistaxis from the myxoma. I believe Mackenzie's dictum to be right that "only in very rare cases is the septum the site of the affection." He evidently referred here to the myxomatous or hyperplastic variety. In short, we have a pathologic manifestation. It always develops on the tissue covering the triangular cartilage, the same region which is the site of that strange process, the idiopathic perforating ulcer, the nature of which I believe to be still unrevealed.

Victor Lange in 1892 drew attention to the disease in a contribution to the *Wiener Med. Presse* (No. 52), and reported six cases.

In 1893, Otto Schadewaldt (Laryngologische gesellschaft zu Berlin) reported three cases.

In the same year Arthur Alexander reported three cases occurring in the practice of B. Fraenkel.

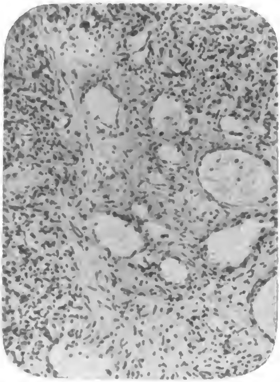
At the same meeting Max Scheier reported two cases and P. Heyman reported five cases.

With my two the total is twenty-one cases.

The great frequency with which these tumors were situated on the left side of the septum was remarked on by Lange; out of the six cases reported by him five were on the left side. And this peculiarity is still borne out by further experience. Out of the twenty-one cases, among which I include my own, in fourteen the growth occurred on the left side, in seven on the right side.

As to sex, we see that Schadewaldt tends to ascribe great importance to the influence of sex. Out of fifteen cases in which the sex was ascertained eleven were females and four males. So that it would appear that the growth occurs with much greater frequency in females than in males. That it occurs more frequently about puberty there can be no doubt. The second decade of life seems to be especially prone to it, eight cases occurring between the ages of 20 and 25. One of my cases, the 6 year old boy, is the youngest patient reported that I am aware of; 51 is the oldest.

The shape, surface, color and mode of attachment of the tumor are constant within narrow limits. It is round, is finely or coarsely granular, according to the age of the tumor, a dark bluish, purplish or reddish color, and is attached by means of a very short and, in comparison to the bulk of the tumor, slender pedicle. To the unaided eye the large tumors may appear to have a broad base of attachment, so short is the pedicle, but the probe gives more accurate information. In size it may vary from that of a small lentil to a hazel nut.



The most constant symptom is recurrent hemorrhage. Whatever the size or age of the tumor, this is always present. The epistaxis may be great or slight. When the tumor reaches dimensions sufficient to block up the nasal chambers, symptoms of nasal dyspnea may arise.

The microscopic pathology is emphasized by the accompanying cuts.

Dr. G. Fuetterer examined the specimens for me and gives the following description:

Specimen 1. The surface is covered with polymorphous epithelium arranged in a single layer for the most part; in places, however, the epithelium is increased to several layers. Beneath this the ground substance commences, which viewed with a low power appears to be homogeneous throughout the whole tumor. Under a higher power, however, the fibrillary character is discerned. Equally distributed through this ground substance are large spindle-shaped cells, having large deeply stained nuclei, which have been cut in all directions, showing their interwoven arrangement. The tumor is highly vascularized, and in the center are numerous cavernous spaces, lined with flat endothelial cells.

Specimen 2 shows nearly the same morphology, except that the blood in the cavernous spaces may be much more readily demonstrated.

Treatment: The tumor should always be removed. Victor Lange recommends the sharp spoon, but this method is liable to spoil your specimen. The snare, hot or cold, will serve very well; if the wire be thin and flexible hardly any difficulty may be experienced in extirpating it *in toto* with one attempt. Then too, the hemorrhage is liable to be profuse, and before trying extirpation we should be prepared for this. A small quantity of ferripyrin in powder on a piece of cotton, held against the bleeding point, will cause the hemorrhage to cease instanter. The base should be well cauterized with chromic acid.

DISCUSSION.

Dr. Freudenthal—Dr. Pierce did not find any mention of similar cases in American literature. Dr. Roe and Dr. Cobb have published cases, and I also published two cases, two years ago. One of my cases was an angioma. Regarding treatment, I apply my nasal bag filled with ice, thus preventing severe hemorrhage. This I did with much success in one case, a few months ago.

Dr. Cobb—I think bleeding polyp of the septum is known under the head of angioma, and about eighteen cases are reported. At the Pan-American Congress I reported a case with the literature as far as I could learn it. In this case there was no recurrence, but I believe that angioma does sometimes degenerate into sarcoma.

Dr. Roe—As a case of angioma of the nose which I reported three or four years ago has been mentioned in the discussion, I will simply say that the growth was exceedingly vascular and occupied the greater portion of the left nostril, extending about two-thirds toward the posterior portion. I first tried to remove the growth with a galvanic cautery snare, but the attempt was followed by such profuse hemorrhage as to necessitate the packing of the nose. I then tried the cold wire Jarvis snare and succeeded in removing the growth without hemorrhage. The patient was a man about 60 years old. After encircling the growth with the snare I instructed him how to turn the nut on the snare so as to cut through very slowly, and to stop the instant that any bleeding occurred, and when this ceased to turn the nut again. In this manner we consumed I think about two hours in the removal of the growth. After the removal I cauterized the base with chromic acid. After about six months there was a slight recurrence of the growth, which I removed in the same manner. I then lost sight of the patient, but about six months afterward learned that he died somewhat suddenly of anemia, characteristic of malignant growths. In this case the tumor started as a purely benign growth, as a microscopic examination of the portion first removed showed it to be a true angioma; while that which reappeared six months later showed sarcomatous elements, indicating that the growth had developed from a benign to a malignant one. We can not, however, positively say that the malignant elements may not have been in the deeper structures or in the base of the first growth, although at that time they were not apparent.

Dr. Pierce—My case was neither an angioma nor a sarcoma but a telangiectoma. I am opposed to the idea of a benign tumor degenerating into a malignant tumor.

SOME NOTES CONCERNING THE INFLUENCE OF SEXUAL EXCITEMENT UPON INTRA-NASAL DISEASE.

Presented to the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

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When some certain offense against personal hygiene is generally recognized as one of several possible contributing causes of a disease, it would seem but reasonable that inquiry concerning it should become a matter of routine, and that in the event of its complicity, it should receive in the plan of treatment the degree of prominence it merits. It is a matter of common knowledge that sexual excitement, frequently repeated and prolonged, can occasion a great deal of vascular disturbance within the nose. With the production of such excitement through the olfactory sense, I am not now concerned. It is with the reverse of this phenomenon that this paper is to deal. A fugitive coryza quickly following upon the heels of a venereal debauch, is an instance of this, though it is a more than usually pronounced illustration of the effect of erotic excitement upon the nasal vasomotor mechanism. Lesser degrees of the same effect, however, are of much more frequent occurrence, I suspect, than many of us believe, and it is because of their frequency and the influence they exert in aggravating existing nasal disease and in hampering the action of local or general treatment directed to its cure, that that they become worthy of some special study.

Among the whole of our patients, it is in but a comparatively small number that we find sexual excitement an active cause of trouble. For the sake of convenience, they may be grouped within two fairly well defined classes. First we have a number of young people whose exposure to it is largely innocent—one might almost say legitimate. I mean those who are on the brink of wedlock, those who are availing themselves of the privileges which custom accords to the preliminary betrothal. Thackeray, in his "Shabby Genteel" story, refers to them as "those who are legally engaged in sighing, gazing into one another's eyes, hand-squeezing, kissing, and so forth (for with such outward signs I believe the passion of love is expressed)." This transition stage between celibacy and marriage is one of acknowledged risk. Long engagements have, for many excellent reasons, been denounced time and again, and the intimacy, the excess of tenderness which too commonly accompany them, are accountable for much suffering both immediate and remote. As long as "the flesh and the Devil" are mixed up with human love affairs, so long as the average man's love is so strongly sensual and so feebly spiritual, so long will protracted engagements be baneful.

It will be my endeavor to show by a single example how the nose and its diseases may be affected by the emotional turbulence of this pre-nuptial period. It is that of a young woman whom I first saw in October, 1893. She had had attacks of hay fever in each of the three preceding years and following the one of 1893 she had developed symptoms of asthma. The nasal examinations disclosed a pair of turgescent inferior turbinates, while those immediately above them were found greatly hypertrophied and along the lower margin of the left a fringe of budding polyps. These latter were thoroughly eradicated with the curette and the bodies themselves reduced by a few repetitions of chromic acid cauterization. The erectile tissue of the lower turbinates regained its full contractile power under simple astringent medication, the asthmatic paroxysms ceased, and the next two years passed with no recurrence of the hay fever. The early months of last year, 1896, were spent in Florida, and when my patient returned to Philadelphia she was wearing an engagement ring. The man in the case was barely twenty-five, a veritable Romeo in the ardor of his passion, and blessed with enough health and virility for two ordinary men. The engagement had been of but slightly more than two months duration when the young woman reappeared in my office with a complaint of renewed nasal discomfort. The middle turbinates were again markedly hyperemic and the lower greatly engorged and prominent. Two or three weeks of the local treatment that had previously been successful in reducing these latter, made very little impression upon them now, and a threatened return in the early summer of the hay fever symptoms induced me to send for the young man and persuade him to assist me in my effort to relieve the sufferer, by becoming considerably less demonstrative of his affection for her. Parenthetically, it may be hinted that sexual intercourse even though carried to considerable excess, is less provocative of damage to the nasal erectile structures, than frequent and prolonged sexual excitement which remains ungratified. For so young a man this one received my remonstrance very sensibly, exercised more self-restraint than I had expected, and with the result that within a couple of weeks the engorged turbinates had shrunken almost to normal, the hyperemia of the middle ones was scarcely noticeable, and there was an entire subsidence of nasal symptoms. The inference is unmistakable. Nothing would be gained by the addition of other examples more or less reiterative of this one, but I may be pardoned for alluding to the tact that is essential in securing the co-operation of one or both of the young people without hurting their feelings or giving any offense. A bachelor is by no means necessarily a misogynist, and I would not be suspected of wishing to dim the brightness of "love's young dream," but if one of the dreamers chances to have any catarrhal condition of the upper air tract, a few judicious words counseling patience before and moderation after marriage may, if heeded, be preventive of a decided aggravation of such condition. I pass to the consideration of a second, the members of which, however, are far from being as innocent as those of whom I have just spoken. It is composed of the man-about-town, single or married, youthful or mature, the sybarite, the voluptuary, the libertine. Whatever we may choose to call him, he is a very numerous personage and though he may escape those specific diseases which so frequently roughen the way of this variety of transgressor, yet, sooner or later, his nose may become the humble agent of retributive justice. The man who enters a physician's office with a venereal disease anticipates the kind of questions he will be asked and is generally willing to answer them unreservedly, but he who comes to the rhinologist with merely a complaint of nasal respiration, of more or less rhinorrhea, and of, perhaps, some dull frontal headache, is apt to be astonished and, not unlikely, resentful, if he be closely questioned concerning his sexual morals. I do not know whether it is dread of the patient's displeasure or simply a want of appreciation of the frequency and potency of this genetic factor in the history of functional nasal disturbance, that leads to the omission of such inquiries, but will it be denied that they are the exception rather than the rule? The exercise of a little discrimination, of, perhaps, a little common sense, will protect a large proportion of our male patients from being subjected to an investigation of this nature, but in many others there will be fair reason to suspect moral laxity, and in these, there should be no hesitation in either confirming the suspicion or in taking the fault for granted and dealing with it frankly and vigorously.

Without having treated any great number of such cases, I have met with sufficient of them during the past few years to open my eyes to the fact that some early failures to effect in them decided and permanent improvement, were due to my failure to recognize and remove the principal cause of their annoying symptoms. A brief reference to the patient who first enlightened me on this point may be of interest.

He was a widower just turned 40, handsome, well-read, widely traveled; a man of most versatile cleverness, an excellent musician, something of an artist, and an occasional writer of very fair verse. All these merely personal details are distinctly relevant, because they are the very things which make a man *persona grata* to the other sex and which consequently expose him to greater temptations than his less attractive fellow. In such men, therefore, we may look much more confidently for easy virtue as an exciting cause of nasal trouble, than in those to whom nature has been less kind. This man recited a list of symptoms that was suggestive of enfeebled vasomotor control over the circulation of the pituitary membrane. There were brief intervals during which he was comparatively comfortable, but the greater part of the time he was seriously annoyed by nasal obstruction, by marked hypersecretion, by occasional paroxysms of sneezing, and by some dull frontal headache. An accompanying marginal blepharitis also testified to the intra-nasal irritation. His statement that he had already endured considerable treatment was amply confirmed by my rhinoscopic examination. His turbinates, both inferior and middle, presented an array of galvano-cautery cicatrices that reminded one of the scarred faces of the German duelists. This seemed to have been the favorite local treatment, but in addition, a fancied neurotic temperament had been assailed with many pills, a suspicion of gout had been threatened with drowning by gallons of lithia water, and, finally, some one had tapped both his antra through the inferior meati as a sort of forlorn hope. It was only a happy accident that saved me from the fate of my predecessors. A review of the treatment he had received yielded me little hope of finding anything of promise that had not already been tried. The end of a month of tentative local treatment, of regulation of diet, exercise, and some other matters of personal hygiene, found us but little beyond the point from which we had started. But just at this critical juncture when I could detect some slight signs of disappointment and failing confidence on the part of my patient, a bit of scandal came to my aid. It was the whisper of an intrigue in which my patient was playing the rôle of Juan. At our next interview this Lovelace admitted without any reluctance the habitual looseness of his conduct with women. He made no attempt to conceal his amused incredulity when I charged this vice with being largely responsible for his nasal discomfort, but he agreed nevertheless to give virtue a month's trial. Not to rob this remedy of any possible credit, all other treatment was for the time suspended. Brief as it was, the period of probation proved more than sufficient to vindicate my faith in the prescription, and I was able to dismiss my patient with the assurance that his best safeguard against future return of this trouble, would be a rigid observance of the spirit as well as the letter of the Seventh Commandment. It is always my endeavor to be as sparing as possible in the use of drugs, but in cases such as this, where from long disuse, self-control has undergone a shameful enfeeblement, the bromids or any of the other anaphrodisiacs may be utilized to dull the vicious appetite, until sufficient will power is regained to completely conquer it.

DISCUSSION.

Dr. Mackenzie—The relationship between over-indulgence of the sexual powers and morbid conditions of the throat, eye and ear has been recognized from a very early period. The fact is about as old as literature itself, but the pathologic relation between the nose and the reproductive apparatus is a matter of recent recognition. The first attempt to reduce the subject to a scientific basis was made by me some fifteen or sixteen years ago, and I subsequently published the result of my observations in the *American Journal of Medical Sciences* for April, 1884. Subsequent observations made, among others, by Arviset, Ischwell and Joal in France and by Peyer, Endries and Fliess in Germany have only served to sustain the positions taken in my original essay. Fliess has written a very elaborate monograph on the subject. The phenomena observed furnishes food for reflection not only for the physiologist and pathologist, but also for the biologist. In contemplating them, we are brought face to face with a most interesting enigma—a problem of life whose biologic significance it must be the task of the future to divine. Dr. Grayson's cases furnish additional corroborative evidence of a most important physiologic relationship.

DIFFICULT DEFECATION IN INFANTS.

Presented in the Section on Diseases of Children, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY THOS. CHAS. MARTIN, M.D.

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CLEVELAND, OHIO.

I should be unmindful of the history of human experience should I harbor the hope that the several affirmations set forth in this paper would be accepted without disagreement by a body of medical men. Remembering, however, that there is very little progress in knowledge except along lines where soundest casuists doubt, I propose for discussion the problem of difficult defecation in infants.

It is generally recognized that infants strain at stool.

The infant strains at stool because of the imperfect development of the anatomic features concerned in the mechanism of expulsion. These are as follows:

1. The infant's lower gut is muscularly deficient.
2. Its mobility within the abdomen is obstructive to defecation.
3. The rectal valves are obstructive.
4. The infant's anus not being sufficiently expansible is also obstructive.

The specimens of infant recta and sigmoid here shown are the first taken in my research on this subject, and are fairly illustrative of the facts upon which the foregoing declarations are based. The large specimens examined are those of adults and are typical.

The dried specimens shown in plates 3, 5, 7, 9 and 20, were prepared by flushing the intestine and then fixing the subject in the genu-acromial posture; the anus was then fixed open and melted paraffin was injected under about twelve ounces pressure. When hardened that portion of the gut occupied by the cast was removed[1]. Specimens shown in plates 11 and 12 were prepared by placing the subject in the dorsal decubitus and by opening the descending colon; the intestine below was then washed out and the colon perforation fixed at the abdominal wound, which save for this point was sewed up, the anus was tied up and as much melted peraffin as would enter under two pounds' pressure was forced into the gut; subsequently the sigmoid and rectum were removed as in the other cases. After immersion in alcohol the specimens were varnished.

The following are the memoranda of the autopsies made in this study:

Case 1.—Female, still-born; height 16 inches (40.64 cm.); circumference at anterior superior spinous process $7\frac{1}{2}$ inches (19.05 cm.); anterior superior spinous process diameter 3 inches (7.62 cm.); ensiform to pubes 4 inches (10.16 cm.); transverse diameter pelvic outlet $\frac{3}{4}$ inch (1.90 cm.); peritoneum at last vertebra of coccyx. (Plate 3.)

Case 2.—Female, age 1 hour, height 17 inches (43.18 cm.); circumference at anterior superior spinous process $7\frac{1}{2}$ inches (19.05 cm.); anterior superior spinous process diameter $2\frac{1}{2}$ inches (6.35 cm.); ensiform to pubes 4 inches (10.16 cm.); transverse diameter pelvic outlet $\frac{1}{2}$ inch (1.27 cm.); peritoneum at last vertebra of coccyx. (Plate 5.)

Case 3.—Male, age 1 month, height 23 inches (58.42 cm.); circumference at anterior superior spinous process 9 inches (22.86 cm.); anterior superior spinous process diameter $3\frac{1}{2}$ inches (8.89 cm.); ensiform to pubes 4 inches (10.16 cm.); transverse diameter pelvic outlet $\frac{5}{8}$ inch (1.59 cm.); peritoneum at last vertebra of coccyx.

Case 4.—Female, age 6 weeks, height 24 inches (60.96 cm.); circumference at anterior superior spinous process $10\frac{1}{2}$ inches (26.67 cm.); anterior superior spinous process diameter 3 inches (7.62 cm.); ensiform to pubes $5\frac{1}{2}$ inches (13.97 cm.); transverse diameter pelvic outlet $\frac{5}{8}$ inch (1.59 cm.); peritoneum at last vertebra of coccyx. (Plate 9.)

Case 5.—Female, age 2 months, height 20 inches (50.80 cm.); circumference at anterior superior spinous process 8 inches (20.32 cm.); anterior superior spinous process diameter 3 inches (7.62 cm.); ensiform to pubes $3\frac{1}{2}$ inches (8.89 cm.); transverse diameter pelvic outlet $\frac{3}{4}$ inch (1.90 cm.); peritoneum at last vertebra of coccyx. (Plate 20.)

Case 6.—Male, age 6 mouths, height 24 inches (60.96 cm.); circumference at anterior superior spinous process 10 inches (25.40 cm.); anterior superior spinous process diameter 4 inches (10.16 cm.); ensiform to pubes 5 inches (12.70 cm.); transverse diameter pelvic outlet $\frac{3}{4}$ inch (1.90 cm.); peritoneum at last sacral vertebra. (Plate 11.)

Case 7.—Male, age 6 months, height 24 inches (60.96 cm.); circumference at anterior superior spinous process 12 inches (30.48 cm.); anterior superior spinous process diameter 4 inches (10.16 cm.); ensiform to pubes 5 inches (12.70 cm.); transverse diameter pelvic outlet $\frac{3}{4}$ inch (1.90 cm.); peritoneum at first bone of coccyx. (Plate 12.)

Case 8.—Male, age 17 months, height 25 inches (63.50 cm.); circumference at anterior superior spinous process 12 inches (30.48 cm.); anterior superior spinous process diameter 4 inches (10.16 cm.); ensiform to pubes 6 inches (15.24 cm.); transverse diameter pelvic outlet 1 inch (2.54 cm.); peritoneum at last sacral vertebra. (Plate 7.)

Examination of the pictures of the dried specimens reveals that the wall of the infant rectum and sigmoid flexure is thin compared to that of the adult. (See plates 3, 5, 7, 9 and 20.) It is impossible to distin-

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[1] For more particular description of the method of preparation see paper by the writer in Mathew's Quarterly Journal of Rectal and Gastro-intestinal Diseases, July, 1896.

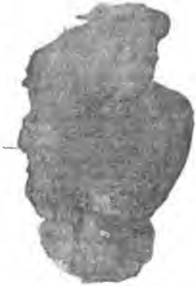

FIG. 1.—The rectum of an adult; muscular bands are seen to be well developed. Filled in the procto-colonoscopic posture.

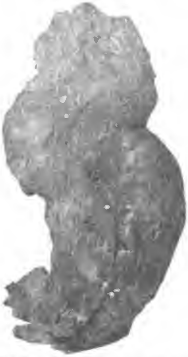

FIG. 2.—The rectum of an adult; muscular bands are seen to be well developed. Filled in procto colonoscopy.

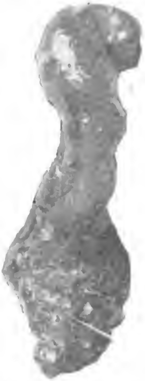

FIG. 3.—The rectum of an infant, stillborn; muscular coat undeveloped. Filled from below.

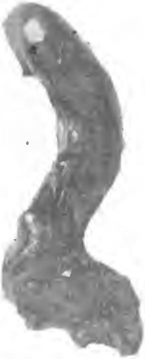

FIG. 4.—Side view of the specimen shown in Fig. 3. Antero-posterior angulation at third sacral vertebra.

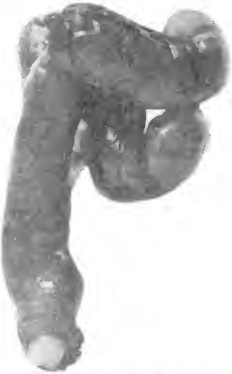

FIG. 5.—Front view of the rectum of an infant aged one hour, autopsy while in a state of rigor mortis. The rectum being nearly perpendicular and the sigmoid almost tied in a knot. Filled from below.

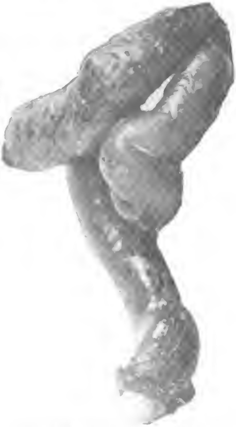

FIG. 6.—Side view of the specimen shown in Fig. 5.

guish the longitudinal muscular bands which are so apparent in the gut of the adult. (See plates 1, 2, 17.) In the fresh state the mucous membrane constitutes a great part of the thickness of the gut wall of the infant, and the mucous membrane and muscular coats are more intimately adherent than in the adult. The infant gut is very deficient in muscular elements, therefore the intrinsic power of peristalsis can not be present in that degree necessary to it as a component factor of defecation.

The relations of the peritoneum to the rectum of the infant, also contribute to the difficulties of defeca-

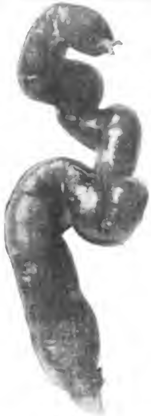

FIG. 7.—Front view of the rectum of an infant aged one month; autopsy while in a state of rigor mortis. Filled from below. Two-thirds life size.

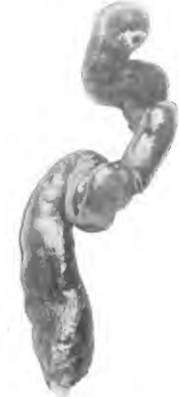

FIG. 8.—Side view of the specimen shown in FIG. 7.

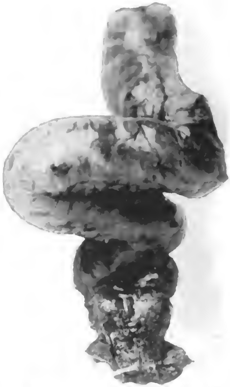

FIG. 9.—Front view of the rectum of an infant aged six weeks. Filled from below.

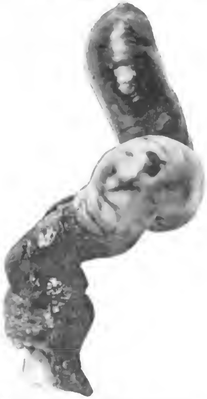

FIG. 10.—Side view of the specimen shown in Fig. 9.

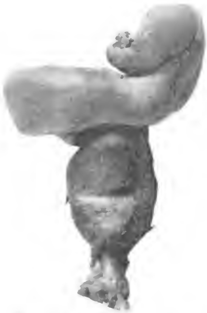

FIG. 11.—Front view of the rectum of an infant aged six months. Filled from above after disappearance of rigor mortis. Two-thirds life size.

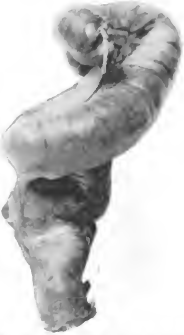

FIG. 12.—Front view of the rectum of an infant aged six months. Filled from above after disappearance of rigor mortis.

tion, as also does the relatively great length of the descending colon and sigmoid flexure.

In the child the mesentery of the sigmoid flexure and rectum is disadvantageously long. In young children the length of the sigmoidal mesentery from its attachment to the parietes to its invagination of the lower loop of the sigmoid is often greater than the distance from the promontory of the sacrum to the distal bone of the coccyx. (See plates 13, 14.) From the sigmoido-rectal juncture to the beginning of the middle third of the rectum the mesentery rapidly shortens but apparently completely invests the upper third of the rectum. The middle and lower thirds are not so completely invested and present upon their

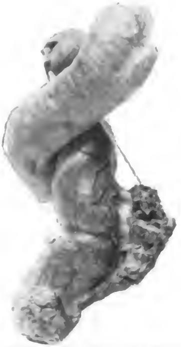

FIG. 13.—Side view of specimen shown in Fig. 12. The mesentery from sacrum and coccyx to the rectum is fairly well shown, but is shown shorter than in the fresh state, alcohol immersion, varnishing and drying having shrunken it. Observe also how nearly the peritoneum approaches to the anus.

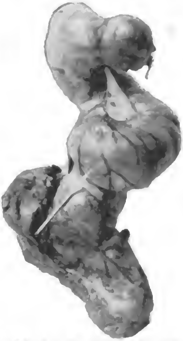

FIG. 14.—The reverse of the view shown in Fig. 13.

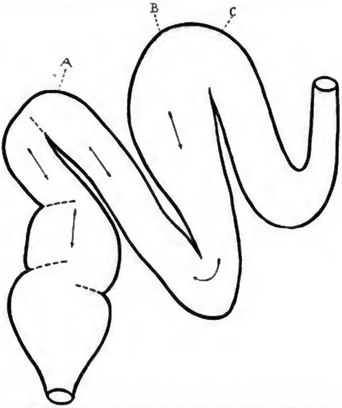

FIG. 15.—Diagrammatic of this gut in the empty state, therefore its flexions are not the same as those shown in the photographs. In the partly filled state, which is the condition about the time of defecation, the flexions and positions of these parts would be intermediate to those of the filled and empty conditions. (The dotted lines indicate positions of valves.)

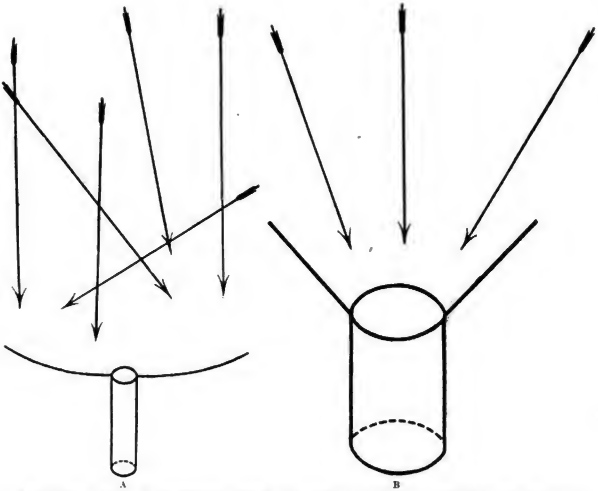

FIG. 16.—Diagrammatic, showing direction of forces and resistance in infant (A) and adult (B) and in defecation.

posterior parts a vertical lane bare of peritoneum, from the borders of which the peritoneum is reflected in lateral directions. This uncovered part of the gut is not applied directly to the sacrum and coccyx, and there is a space between which is occupied by loose connective tissue. The distance from the dorsal parietes to the gut is variable here, being from one-half to one-fourth of an inch (1.27 to .63 cm.) At the beginning of the middle third there is usually a gradual decrease in the length of the peritoneal band as it descends till it is one-eighth or possibly but one-sixteenth of an inch (.32 or .16 cm.) in length at the last bone of the coccyx; it rapidly shortens from this point to its termination. The parietal peritoneum descends over the ischial tuberosities and approaches nearly to the ental sphincter muscle. In the newly born the peritoneum is situated within one-fourth inch (.63 cm.) of the anal skin. (Observe plate 13.)

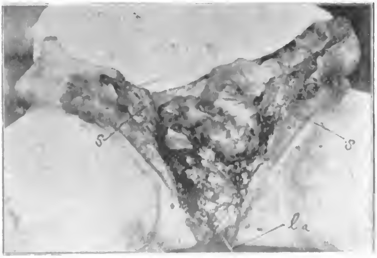

FIG. 17.—Photograph of a female cadaver showing, after laparosymphyseotomy and removal of bladder, uterus and adnexa, the upper rectum and sigmoid packed with scybala; ss, symphysis pubis; la, ligature at anus. The shorter mesentery of the adult, perhaps, keeps the greater portion of the sigmoid flexure above the ileo-pectineal line that it may not escape the auxiliary forces of defecation. It is noticed that the sigmoid is more than normally distended. Quarter life size.

The disproportionate great length of, descending colon and mesentery of the infant obviously contributes to the possibility of angulation of the gut.

We see in the presence in the child of lax and long, or relatively long, peritoneal ligaments, and in the great length of the descending colon and the consequent probability of numerous acute angulations in the infant sigmoid and rectum, and in the mobility of these parts within the abdomen, the possibility of development of a perfect adult mechanism for defecation. The essential features of this development are two; first, the growth of prostate or uterus and their supports which fix the lower rectum; and second, the down-growth and out-growth of the pelvic bones and the consequent conversion of mesenteric peritoneum to parietal peritoneum, which shortens the adult mesentery and in great measure fixes the upper rectum; thus the entire rectum is steadied to facilitate discharge when the mechanism of defecation is set in operation.

The diagrammatic plate 15 does not exaggerate these obstructive elements. The collateral muscles which assist in the performance of the act of defecation force the feces in the direction of the lower angle in each flexion, and in that flexion whose onward, or to be paradoxical, whose downward direction for the time points upward (plate 15), the auxiliary pressure is in the direction opposite to that of peristalsis.

Inspection of the pictures of the dried specimens reveals the angulations referred to, which may be expected to be more numerous the more segmentary the gut's contents.

The third feature obstructive to defecation in infants is the rectal valve. It is a feature and factor which not only is not recognized, but is one whose very anatomic existence has been most ingeniously and persistently disputed. It was imperfectly described as an anatomic feature of the rectum by Mr. Houston in the Dublin Hospital Reports in 1830, and many years later Dr. Walter A. Otis (1887) more practically demonstrated its presence; neither of these gentlemen, however, attributed to it the characteristic element of an anatomic valve, although bestowing upon it its proper name. A number of investigators have discovered this normal contracture of the ampulla and have miscalled it by various names and given it widely varying descriptions; but a greater number still deny its existence and critically strive to dissolve away the imperfect evidence recorded in medical literature[2].

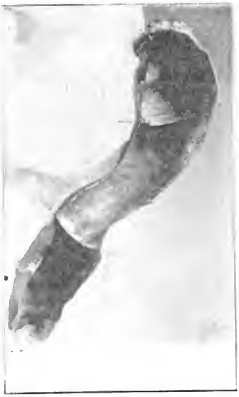

FIG. 18.—Interior view of the left half of the rectum of an adult. Filled in the procto-colonoscopic posture, and distended only to the degree of normal atmospheric inflation. The anus is at the left of the picture. The valves are respectively two and one-half and seven inches (6.35 and 17.78 cm.) from the anus. One-half life size.

The pictures here shown of the dried specimens prove that in the infant the valve is such a matter of fact that its existence is no longer a matter for debate.

In each and every instance of more than three hundred persons examined by me these valves have been present, though in varying number and position in different subjects[3]. In most cases there are present three valves, in some there are four and in others there are but two.

I have marked that by some law of compensation the fewer the number of valves in a given subject the better are they developed.

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[2] See Monograph by the writer on New Evidence that the Rectal Valve is an Anatomical Fact, John P. Morton and Company, Louisville.

[3] See paper by the writer, Procto-colonoscopy, etc., Mathew's Quarterly Journal of Rectal and Gastro-intestinal Diseases, July, 1896.

The infant specimens shown indicate that the valves are particularly well developed at birth. The specimen shown in plate 20 is marked by two valves in the so-called ampullar region, situated so close together that the middle portion of the rectum presents its longest diameter at right angles to the main direction of the gut. Another valve may be seen at the juncture of the upper portion and the sigmoid flexure.

The specimen shown in plate 18 is that of an adult, and presents two valves on the left and one on the right which is not exhibited. As these valves usually span more than half the circumference of the rectum it will be understood that in specifying their situation I refer to their central part. In many cases they are situated on the anterior and posterior walls, and their free borders are always directed a little obliquely, contributing a spiral direction to the channel of the rectum. The depth of the valve from free border to the border attached, is usually about one-third the transverse diameter of the inflated rectum, and the valve is about one inch (2.54 cm.) in depth at its deepest point. Inspection of the photograph of the adult specimen (shown in plate 19) which was taken from the subject without disturbing its scybalous contents, shows that the valve may be found in systole (*vide* xx, x'x) or diastole (*vide* m, m'm').

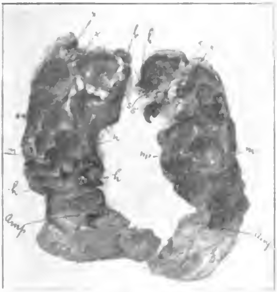

FIG. 19.—The rectum the same as is shown in Fig. 17, divided into anterior and posterior halves. Amp., anal end of ampulla; ss, sigmoido-rectal communication; xx, x'x', a semilunar valve dividing the middle and upper portions of the rectum; m, the beginning of a semilunar valve on the right of the posterior wall, and m'm', the same valve continued over the anterior wall; h h, a small valve not prominent because of the empty state of the gut at this point; b b', sigmoido rectal valve; n, a portion of mesentery. One-half life size.

The microscopic section which is here shown was taken from the middle of the lower valve of the adult specimen. (Plate 18.) In the illustration (plate 18) it is shown magnified fifteen diameters. The thickened state of the mucous membrane over the free border of the valve fortifies that point against the increased friction which that part must necessarily bear. Beneath it is noticeable the heavy layer of fibrous tissue which gradually diminishes till it is lost at the valve base. Bundles of circular muscular fibers are seen in the middle of the valve. At its base are seen arteries and veins for its special nutrition. This structural arrangement makes this organ the typical anatomic valve.

Speaking with anatomic accuracy the rectum is divided into as many portions, plus one, as there are valves in the rectal ampulla; for example, the rectal ampulla may be said to begin just below the angle which marks the termination of the sigmoid flexure. If there be two valves below this point, that part of the rectum above the higher one of these two valves must be considered the upper or first portion of the rectum, that part below the higher valve and extending to the lower, the middle or second portion, and that part of the rectum below the lower valve and terminating at the levator ani may be called the lower or third portion. Should a rectum have three valves, or perhaps but one, not counting the one at the sigmoido-rectal juncture, that subject's rectum accordingly should be considered to have four or two portions. Therefore if we recognize the existence of these valves in the rectum the conventional division into upper, middle and lower thirds, which is employed by the anatomists should be abandoned.

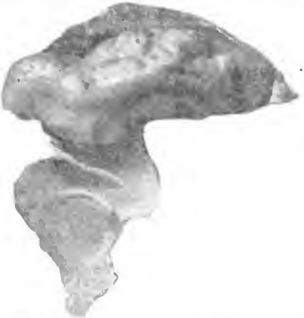

FIG. 20.—The rectum and sigmoid of an infant aged two months. The photograph shows the interior of the anterior half. Portions of two valves are noticed at the middle part.

It must be readily seen that the presence in the rectum of such a structure as an anatomic valve would be essentially obstructive to the passage of feces.

In studying the physics of the rectum it is important that we recognize that the posterior wall from which the mesentery is reflected is less movable than other parts in the circumference, hence distention of the rectum not only tends to carry a given point of its wall away from a point opposite to it, but also carries it away from a given point cephalad or caudad. So it may be assumed that if the two valves situated at the ampullar middle of the cast-distended dried specimen (plate 20) are three-eighths of an inch (.95 cm.) separated, and that the two opposite walls of the rectum in the portion bounded by these valves are one inch (2.54 cm.) apart, that in a state of the gut's collapse or systole, the valves would be in contact, and thus afford a very definite obstruction to the descent of semi-solid feces.

The bony pelvic outlet in the infant is so contracted that the limits of anal expansion are such as to almost defeat the passage through it of other than fluid feces. It should be remembered that the normal average measurement from ischial tuberosity to ischial tuberosity in the adult is about four inches (10.16 cm.), and it is a fact proven by our observation that the average transverse diameter of the newly-born infant's pelvic outlet is but a little more than one-half inch (1.27 cm.), the pubo-coccygeal measurement is even less. Those who are familiar with instrumental divulsion of the adult anus have observed that two and a quarter inches (6.35 cm.) is the average limit of lateral separation of the anus, the remaining portion of the bony outlet being filled with the compressed soft tissues of the ischio rectal space. Therefore it may be estimated that nine-sixteenths at most, of the diameter of the pelvic outlet is the reasonable limit of expansibility of the anus for the passage of feces. Applying this calculation to the infant we find that if the ischial tuberosities are one-half inch (1.27 cm.) separated, that the anal expansibility is but five-sixteenths of an inch (.79 cm.), which is, as we know, the diameter of a No. twenty-two sound (French scale). Reference to the paraffin cast of the infant gut (plate 22) indicates that the average distensibility of the sigmoid flexure and rectal ampulla, in which the feces when firm are formed, is four or five times that of the anal expansibility; thus it is readily perceived that compared to the adult the juxtaposition of the ischial tuberosities in the infant supplies a most obstinate obstructive factor in defecation.

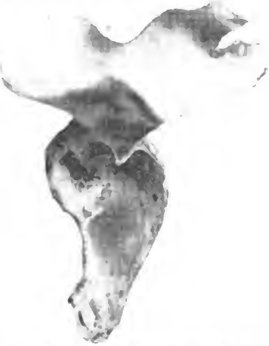

FIG. 21.—The interior view of the opposite posterior half of the rectum shown in Fig. 20, the two valves shown in Fig. 20 being continued toward each extremity of the ampulla. The sigmoid is out of focus.

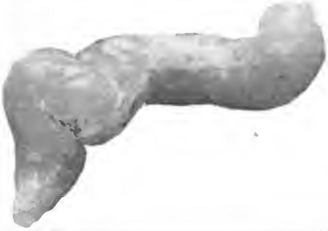

FIG. 22.—The paraffin cast removed from the gut pictured in Figs. 20 and 21.

To collate in brief:

1. The muscular development of the adult rectum and lower sigmoid is plainly apparent in the plates here exhibited of the fresh specimens. A deficient muscularity is observed in the infant specimens.

2. The peritoneum of these parts in the adult is observed to be relatively, very considerably shorter than that in the infant[4].

3. The rectal valves appear to bear the same proportion to the gut in both adult and infant, but when we remember the difference in muscular development in the two the disproportionate resistence of the valve in the infant rectum is obvious.

4. The anal expansibility is remembered as adequate in the adult, and is seen to be deficient in the infant.

Co-relative to the facts just stated we must recognize that the adult rectum has resident within its own wall a powerful expulsive muscular mechanism; that the shortening of the mesentery holds the upper rectum steady under the applied auxiliary forces; that the angulations of the sigmoid are not necessarily obstructive, though in a desirable measure retardative; that the forward incline of the lower sacrum and coccyx behind, and the development of the uterus and prostate and their inherent supports in front, provide the lower adult rectum with a firm funnel-like arrangement which guides the feces directly upon the os internum of the anus; that the valves divide the feces into portions to facilitate their separate successive discharge, and finally in sequence, that the physiologic descent[5] of the structures of the ischio-rectal space reduces this last resistence to the minimum in adult defecation.

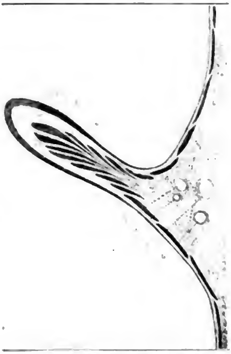

FIG. 23.—A semilunar valve taken from the specimen shown in Fig. 18, drawn as seen under a glass magnifying fifteen diameters. A, mucous membrane; B, fibrous tissue; C, bundles of circular muscular fibres; D, vein; E, artery; F, vein; G, artery; H, areolar and adipose tissue.

Straining, the ruptures and prolapses, constipation, retention of feces and the multitudinous consequent ills have demanded our patient inquisitive consideration; and this study forces the conclusion, I believe, that the individual's escape is ultimately assured by process of development, but that for the normally formed infant, the physician will find the solution of the problem of difficult defecation in the solution of the stool.

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[4] See Andrews' Surgery of the Rectum, table of peritoneal relations to adult rectum.

[5] Chadwick, Transactions American Gynecological Society, 1877.

1077 Prospect Street.

MEDICINE AND THE STATE.

From a paper read before the Contemporary Club, Davenport, Iowa, Nov. 18, 1897.

BY C. H. PRESTON, A.M., M.D.
DAVENPORT, IOWA.

Just half a century has passed since, in 1847, Liverpool, and soon after, London—fearing a cholera invasion—appointed the first medical officers of health in Great Britain.[1] The next year, the dread scourge having made its appearance, a central board was established, and today, to quote Palmberg's *Public Health*: "Of all the countries of the civilized world none has a sanitary code so complete and so precise as England." That its provisions are respected by all and, as a rule, religiously observed, he rightly ascribes to the fact that they are the work of the people themselves and not mere administrative orders but little understood.

The sanitary administration of England is placed, in accordance with the public health act of 1875, in the hands of a government board acting together with boards locally established. The former consists of a president appointed by the crown, a parliamentary and a permanent secretary, together with various secretaries and high officials of state acting as advisory members. Its work is divided among the general departments of poor-law administration, the sanitary regulation of buildings, of factories, of sewers and streets, water supply, vaccination and other matters pertaining to public health,

Complete as is its present organization however, there is a movement now on foot to place it on a yet higher plane.[2] A motion will soon be made in Parliament, it is said, that "in the opinion of the House of Commons it is desirable that a department of public health be constituted and that the same be under the charge of a responsible minister having a seat in Parliament."

In this country the first step in state medicine was taken in 1849, when a commission was appointed by the governor of Massachusetts to prepare for a sanitary survey of that State.[3] But the Massachusetts State Board of Health, the first active State board to be formed in the Union, was not established until 1869. Meanwhile, in 1865, the State of Louisiana, in order the better to cope with an invasion of yellow fever, had appointed what was actually the first State board, though it possessed but very limited powers. At the present time all but ten of our fifty-one Federal divisions, including the District of Columbia, have each its more or less active board of health, all working together for the general welfare, while local boards under them, everywhere co-operate for the sanitation of cities and towns.[4] The ten exceptions are Alaska, Arizona and the Indian Territory, Georgia, Idaho, Montana, Oregon, Texas, Utah and Wyoming. Georgia formerly possessed a State Board, but allowed it to lapse for lack of an appropriation. Texas, though without a State Board, maintains a State Officer of Health.

But the United States has today no national board or department of health. The first step was indeed taken toward the nationalization of health in this country March 3, 1879, when an act of Congress to prevent the introduction of contagious or infectious diseases and to establish a national board of health was approved.[5] The board thus authorized, however, had but four years of active existence. It consisted of eleven members, seven appointed by the President and one each detailed from the Medical Department of the Army, the Medical Department of the Navy, the Marine-Hospital Service and the Department of Justice. It had no definite term of office and its duties, beyond gathering and disseminating information, were advisory merely. An act approved June 2 of the same year somewhat extended its powers but was limited to the four years succeeding, at the end of which period—Congress refusing to re-enact—the board ceased practically to exist and the act establishing it was at length formally repealed Feb. 15, 1893.

The place of a national board is now filled in part by the Marine-Hospital Service, a bureau of the Treasury Department, aided by the Bureau of Animal Industry of the Agricultural Department.

The Marine-Hospital Service was established in 1798, but placed on its present basis in 1871.[6] Its purpose was to care for the sick and disabled seamen of the merchant marine. In default of a national department of health, however, other duties and responsibilities have from time to time devolved upon it, giving it an anomalous position in the government, without definite scope or determinate power. The Revenue and Life-Saving Services depend upon it for the physical examination of their officers and men; it assists the Steamvessels Inspection Service by examining pilots for color-blindness; it is entrusted with the execution of the national quarantine laws, the management of the eleven national and the inspection of all local quarantine stations and with power to enforce inter-state quarantine regulations; it investigates reported cases of epidemic disease, collects and disseminates mortality statistics and sanitary information and makes investigations (bacteriologic, etc.) into the causes of disease; it examines immigrants for the existence of contagious diseases and has service in consul's offices at foreign ports to secure accuracy of bills of health given.[7]

The Bureau of Animal Industry investigates as to the existence of communicable diseases of stock, superintends measures for their extirpation and pursues investigations as to their nature and means of prevention. It has charge of the inspection of import and export cattle, vessels of export and stock quarantine stations, and supervises the inter-state movements of live stock and their slaughtered products.[8]

But when all is said, both bureaus remain and must remain subordinate organizations, subservient in part to other interests than those of health.

Another organization which has done and is doing much to promote and harmonize sanitary work in and between the States is the American Public Health Association, a body composed of the leading sanitarians of the United States, Canada and Mexico. But it is wholly without government authority or support.

The need for a sanitary head with which other nations could confer and co-operate authoritatively and promptly, which should co-ordinate, supplement and assist, but in no way supplant the several State boards, has long been felt; and various bills for establishing such a head, mostly crude and imperfect, have from time to time been introduced in Congress. In the closing hour of the last meeting of the AMERICAN MEDICAL ASSOCIATION a committee, appointed in 1891 to consider and report on this subject, brought in and recommended the most complete bill yet offered.[9] It was approved and they were instructed to present it before Congress at their discretion and to urge its adoption. The bill, as formulated, provides at much length for the establishment of a department of health which shall succeed to the present sanitary duties and powers of the Marine-Hospital Service, and of which the latter shall constitute a subordinate bureau, continuing its appropriate work. But by this bill the head of the new department is made a commissioner merely and not, as was the original intent of the ASSOCIATION, a secretary and one of the President's cabinet advisers.

Such is the existing status. Let us turn now to a consideration of some of the work waiting to be done by a department of health when it shall be established.

Our yellow fever epidemic of the past season, with its needless sacrifice of life and its prolonged interference with business interests—the latter costing the city of New Orleans alone, as estimated by the *New York Herald*, over $25,000,000[10]—forcibly illustrates the importance of greater national quarantine powers in dealing with incipient epidemics, which may well develop into national calamity.

Quarantine measures had their beginning in the twelfth century, when the Republic of Venice, after suffering repeated devastations by cholera, sought thus to protect itself against infected Asiatic ports,[11] and from that time they have held a first place in national sanitation. But to be effective, quarantine must be prompt and inclusive, must be broadly national in its scope. No local interest must have power to prevent or delay.

Another most important field, but partially occupied at present, is that of biologic research. Carried on to some extent, as we have seen, in and for the Bureau of Animal Industry and the Marine Hospital Service, it should be greatly extended for the investigation of human bacterial diseases.

Vital statistics, too, if collected under organized medical control, could be extended to cover much more fully than at present questions of disease distribution, with regional influence, etc., and above all be given a degree of accuracy and uniformity which, though essential to their working value, it is not now possible to attain. By present census methods the apparent death rate of the United States in 1890 was but 13.98 per 1000 of living population, whereas the actual rate, as estimated by the census commissioner himself, is about 18 per 1000, showing how unreliable are the data from which it was attained.

The registration States, in which alone there is any approach to accuracy of enumeration of births, marriages and deaths, comprise only about 4 per cent of the area, with one-fifth of the population, of the Union. Registration should be provided for in every State; there should be a trained census service permanently established, and the present too long decennial period should be cut in two. Commissioner Wright is seeking to effect these reforms; with a department of health they would be naturally attained.

In the care of the defective classes, and in measures to eventually reduce their numbers, the department could greatly aid—at least through co-ordinating—State and municipal effort.

There were in the United States, June 1, 1890, according to the eleventh census, 106,254 insane, 95,571 feeble-minded, 121,178 deaf and deaf mutes, 144,399 blind and 194,027 sick and disabled (in the registration States); in all 661,429, or over 1 per cent. of the entire population. This means a vast loss, both in productive power and in cost of care, a loss which ought to be greatly reduced. It must be allowed that from a purely economic standpoint, the care of defectives is a very pertinent affair of State.

We may not be prepared to agree with the Colorado philanthropist who advocates "the judicial taking-off" of the incurable insane, though such a procedure would seem to accord both with justice to the taxed producer and with the spirit of the golden rule; but it may surely be questioned if favoring the defective, to the ultimate lowering of racial vitality, is wise. Rather let us seek to increase productive strength and the expectancy of life through concerted measures to prevent disease and remove the causes of defect.

"The state of the future," says Jacobi (Therapeutics of Infancy and Childhood), "will have to see to it that epileptics are not placed in a position to raise progeny equally accursed. . . . The daughters of hemophilic families ought not to be allowed to marry. . . Society and the state, with its organization of ignorance and disorder, are responsible for so much of deaf-mutism as is not pathologic. . . The individual should be controlled by the community in the interest of the public health."[12]

Dr. Toulouse, a French writer on mental diseases, would have the existence of either epilepsy, cancer, syphilis, tuberculosis, or alcoholism bar legal marriage.[13] The Connecticut legislature has, I believe, passed an act prohibiting the marriage of epileptics, and a progressive member of the Texas legislature has formulated a bill requiring of each party to a proposed marriage contract, a certificate of physical soundness from some competent physician, together with the applicant's sworn statement of his freedom from any transmissible disease.

I quote these propositions, not as practicable of direct application, but as indications of a trend of earnest thought. Education in this direction is to be desired and furthered, but prohibitive marriage regulations, beyond those already in force as to consanguinity and incompetency (from whatever cause) to contract, would doubtless result in more harm than good by increasing the number of illegitimate births.

Another work of importance to the Nation, as well as to the several States, is the regulation of medical practice, fixing the qualifications of those to be entrusted with the citizen's life and health.

Under the Justinian code or civil law, and under the common law no barriers whatever were raised. Any one might practice either medicine or law, regardless of fitness or qualification (but subject always for injuries inflicted on others), the right of choosing an occupation being held to be inherent. But the tendency of legislation is to prescribe qualifications for practice, an exercise of the public power justified by regard for the welfare of the people, which is the supreme law. The right to practice (subject to reasonable qualifications) is neither a property right nor a vested right, but is a right, nevertheless, which can not be arbitrarily taken away. Such in substance is the opinion of Judge Pugh of Ohio, given in support of the constitutionality of the Medical Practice Act of that State.[14]

All the States and Territories today, with the single exception of Alaska,[15] recognizing the need for restrictive legislation, have medical practice acts, more or less stringent in force, but they are far from uniform in requirement or in enforcement. Of them all none, I believe, is more efficient than the revised Iowa law as enacted last spring. Its just requirements now apply, virtually without exception, to all who profess to heal or cure in any way whatever, by medicine, appliance or method, and if enforced must prove effective against ignorance and pretense. The State in its requirements can, of course, take no account of school or belief, but of knowledge and fitness only. These, however, it must require of all alike, with neither exception nor favor.

The so-called osteopaths, in their recent concerted raid for exemption, were happily, in this State, unsuccessful; but Michigan acceded to their ridiculous demand, Missouri had already done so, and Illinois was only saved from a like disgrace by the veto of her governor. A National department co-operating with all the States would strengthen each against legislative corruption such as was undoubtedly brought to bear in this case.

A field of work closely related to regulation of practice, and one in which the influence of a department might be exerted to advantage, is the supervision of medical schools. The report of the commissioner of education for 1894–5 shows the existence of 151 medical schools in theUnion, or an average of more than three for each State, and more than twice the whole number of law schools existing, while the number of medical students (22,887) exceeds that of all law, theological and dental students combined.

There is, I believe, no legitimate demand for more than one-third this number of schools—doubtless a score, well equipped, would be all sufficient—and half the crowd of graduates annually set adrift would more than suffice for all actual needs.

There is reason to hope that the near future will witness a much to be desired reform in this direction, whether or not it shall be hastened by the establishment of a department of health. Increasing State requirements and cost of medical education, says the commissioner in effect, seem to indicate the approach of a time when medical schools, outside the great population centers, will be rare; also increasing endowments point toward the establishment of more worthy foundations, which will eventually do away with the horde of joint-stock, medical advertising institutions, whose only reason for being is to advance the selfish interests of their professors.

But the State, it would seem, might well interfere more directly to this end. Its right to determine the fitness of the physician is unquestioned. Should not the qualifications of the professor be equally guarded? The public interest suffers much by our present laxity in this regard. Harm results not alone through the graduation of innumerable incompetents, but also by the induced life-failure of many youths of good parts who, with little natural adaptation for the physician's life, are lured to a fatal expenditure of time and money, drawn into the clamorous portals of a profession from which they should rather have been kindly turned aside. In medicine especially is it true, as tersely expressed by an eminent scholar, that "we are constantly making the mistake of training men out of their capacities." The student should be met at the outset with careful tests, supplemented by kind and disinterested advice as to the choosing of his life career.

Another matter calling urgently for supervision is the manufacture of the various potent animal products to which the rapid growth of so-called serum-therapy is constantly giving rise. The many tuberculins, antitoxins, etc., in the market have each its dangerous as well as its beneficent possibilities. As an immunizing agent, representing the entire class, we may take vaccine production alone. If it is ever the duty of the State to require vaccination—and its protective power is overwhelmingly proven—it is at the same time unquestionably her duty to see to it that the virus employed is pure. At present this is not done. "In most States," says Dr. Lindsley, secretary of the Connecticut State Board of Health, "there is no legalized supervision."[16] Dr. Pittfield, reporting to the Pennsylvania State Board, after a careful examination of a large number of vaccine-producing establishments finds "great carelessness and negligence as to the purity of the product," with "no official supervision" existing.[17] And Dr. Abbott of the Massachusetts State Board, replying to an inquiry from the president of the Medico-Legal Congress of last year, meeting in New York, says: "Very little supervision is exercised in this country over the production of vaccine lymph," and expresses the opinion that its production "should be under the supervision of either State or National authorities."[18] This and other like products of incalculable sanitary importance, are widely distributed without regard to State lines, and the need for their National control, it would seem, must be plainly apparent; as also for control of the flood of patent and proprietary medicines, whose least evil is their immense money cost.

Of all sanitary measures requiring powers more extended than those of the several State boards, none is more important, perhaps, than the prevention of the pollution of streams. But here it may be objected, in the words of Dr. Billings, that: "The general Government can do little in the way of compulsory legislation which might interfere with the action of the several States to control their own sanitary affairs."[19] If this be true then greater power must be obtained through constitutional amendment, awaiting which the exercise of the right of eminent domain would find in so important a public need its most complete justification.

A subject to which I can but allude is that of National interest in endemic affections. In dealing with diseases so threatening to racial vitality as are leprosy, syphilis, and above all tuberculosis, there is need for the active aid of a department having National jurisdiction and powers. Consumption, according to Koch, is responsible for one death in seven the world over; one in eight and one-sixteenth by our own census of 1890; and owing to its principal methods of transmission, linked as they are with food-supply and means of transit, local measures are inadequate to its effective control. The danger from tuberculous meat and milk, and from the dissemination of tuberculous sputa, is now generally admitted, but in not more than one-third of the States, and in about the same proportion of the larger cities of the Union, are any practical measures being taken to meet it.[20] The movements of tuberculous cattle and their food products need Federal power for their prevention;

and Federal power must likewise be invoked for the general sanitation of sleeping cars and other interstate means of conveyance, perhaps also for the establishment of sanitaria especially equipped.

But enough. I have tried, first, to make clear the vital importance of sanitation to the State, and having glanced at its beginnings and growth, to point out some of the more urgent State needs in this direction. First of these is a sanitary head represented in the Nation's chief council, a governmental department analogous to the German "Reichsgesundheitsamt," or National Health Service, to the French "Directory of Public Hygiene," and to the English "Government Health Board," as it is to be. If, in presenting this need, I have assumed the role of advocate perhaps somewhat warmly, I must plead in extenuation my strong conviction of the importance of the end sought. But while advocating an increase of central power in the health interests of the people, I trust I shall not be misunderstood as favoring interference with individual State sanitation, or as sanctioning, even in the remotest degree, the dangerous policy of so-called paternalism, which would favor the interests of any *class* under the specious pretense of an ultimate benefit to all.

REFERENCES.

1 Larned: History for Ready Reference, Vol. III, p. 2121 et seq., p. 2149.
2, 9, 10 Jour. Am. Med. Assoc., Sept. 11, 1897, p. 552; Oct. 9, 1897, p. 751; Oct. 23, 1897, p. 867; Sept. 4, 1897, p. 493.
3 Dr. Franklin Staples, Sec. Minn. State Board of Health: Article on State Medicine in the United States. Jour. Am. Med. Assoc., April 10, 1897, p. 685.
4 Report of the Am. Pub. Health Assoc., 1896.
5, 6, 7, 8 Report of the Supervising Surgeon-General of the Marine-Hospital Service, 1896, pp. 1086, 1040, 1038, 1087.
11 Dr. Henry Mitchell, Sec. New Jersey State Board of Health: Address on State Medicine and Hygiene, Jour. Am. Med. Assoc., July 17, 1897, p. 131.
12 Dr. A. Jacobi: Therapeutics of Infancy and Childhood, pp. 407, 136, 447, 136.
13 M. Toulouse: Jour. Am. Med. Assoc., Oct. 23, 1897, p. 755.
14 Judge Pugh: Jour. Am. Med. Assoc., Oct. 23, 1897, p. 871.
15 Dr. J. F. Kennedy, Sec. Iowa State Board of Health: Personal letter.
16, 17, 18 Clark Bell, LL.D.: Article on Compulsory Vaccination, Jour. Am. Med. Assoc., Jan. 9, 1897, pp. 50, 51, 53.
19 Dr. John S. Billings: Introduction to Hygiene and Public Health.
20 Dr. S. A. Knopf: Article on Preventive Means Against the Spread of Tuberculosis, Etc., Jour. Am. Med. Assoc., Oct. 30, 1897, p. 876.

ALCOHOLIC BEVERAGES.

Presented to the Section on Physiology and Dietetics, at the Forty-eighth Annual Meeting of the American Medical Association at Philadelphia, Pa., June 1-4, 1897.

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In this article I shall not touch upon the uses of alcoholic liquors as remedial agents in disease, but consider them solely in their effects upon alimentation. In so doing free use will be made of the researches and opinions of various writers, whose views differ widely, and an effort will be made to sustain a position removed from either extreme, in the belief that in this, as in most disputed matters, the charge of Apollo to his son Phaethon, on his undertaking to drive the chariot of the Sun, was wise, "*In medio tutissimus ibis.*"

Liebig, on chemical grounds, regarded alcohol as a respiratory constituent of food, contributing to the production of animal heat by oxydation. Tallemand, Perrin and Duroy, having detected alcohol in the urine, sweat and exhaled breath, concluded that it passes out of the body mostly without chemical change. But Parkes and Count Wollowicz, by means of the chromic-acid test, obtained the characteristic green reaction twenty-six days after the last ingestion of claret; and Dr. Dupré, after total abstinence of six weeks, found responses to the same test in the urine and breath, and also a substance yielding acetic acid on oxydation. The last, together with Anstie, Thudicum, Schulinus, Baudot and Pavy, agree in the conclusion that most of the alcohol taken into the system is oxydized and generates force. Were this not so, it could be largely recovered from the fluids excreted and exhaled from the body by distillation.

But there is evidence that mammals at least are not dependent upon art for a supply of alcohol, and that every one distills a certain quantity within his own body, which is mostly consumed; and this was the source of the alcohol found by Parkes, Count Wollowicz and Dupré in the breath and urine.

Prof. W. Hutson Ford, M.D., contributed to the *New York Medical Journal* of June, 1872, an article entitled "Normal Presence of Alcohol in the Blood," and based upon his researches in 1858 and 1859. The following table shows the results of thirty-two experiments by distillation of substances derived from oxen and dogs, some putrescent, in intervals varying from seventeen to ninety-six hours after death, others fresh, in intervals, from seven to seventy-seven minutes after death:

Yield of alcohol in 10,000 parts by weight from

1.	Capillary blood of the lungs;	
	Calculation based on *carbon ingested*	0.5403
	" " " *carbon exhaled*	0.5794
2.	Putrescent lung-tissue (mean of three experiments)	0.3819
3.	Fresh " " " " "	0.3676
4.	Putrescent thoracic blood (mean of five)	0.7626
5.	Fresh " " (mean)	0.0841
6.	Putrescent liver-tissue	4.3128
7.	Fresh " " (mean of three)	0.0190

Dr. Ford obtained alcohol also from fresh pancreatic tissue of the ox sixty minutes after it was struck down, and from the blood of a dog ten minutes after it was drawn from the cephalic end of the jugular vein. The amount was too small for quantitative estimate, but it gave the characteristic reaction with chromic acid.

As observed, by far the largest yield of alcohol was from the putrescent liver, and much the smallest from fresh liver. This organ contains more sugar than any other tissue, but the change into alcohol begins here and is nearly or quite completed in the lungs, where oxydation is quickly performed, as shown by the small difference in yield between fresh and putrescent lung-tissue. It is presumed that about one-half of the lung-tissue consists of blood, and putrescent lung-tissue yielded about half as much alcohol as putrescent thoracic acid blood. Most of the thoracic blood had not yet reached the pulmonary capillaries, and was therefore little oxydized, and yielded much less alcohol than the capillary blood of the lungs. The yield corresponded to the time elapsed for the fermentative process.

It is probable that the sugar which is not converted into fat in the liver undergoes vinous fermentation, chiefly in the lungs, and as alcohol is consumed in the blood, generating heat and vital motion. The large yield of alcohol by putrescent liver-tissue represents the stored glycogen in the liver and the residual sugar carried forward by the hepatic vein during life. In diabetes mellitus we may suppose that there is some interference with this process of fermentation.

In a recent private letter to the writer, Prof. Ford assumes the constant presence in the animal economy of an enzyme, which transforms hepatic sugar into alcohol and CO_2. This action generates heat, just as it does in the fermenting tub of the beer and wine-maker, and heat and vital action are later produced in the oxydation of the alcohol. Claude Bernard failed to take up Prof. Ford's line of study, from the supposition that the vinous fermentation is the work of the torula cervisiæ solely and from knowledge that this ferment does not exist in the animal economy. Prof. Ford's experiments show that liver-tissue will induce alcoholic fermentation in diabetic urine, and that decoction of liver-substance undergoes this process within a few hours at 100 degrees to 106 degrees F., but not at 60 degrees; hence he concludes that the liver furnishes the ferment. So far as I know, this line of investigation has not been pursued by others, but the work was done with utmost care by a competent expert, and the conclusions are entirely reasonable.

Pavy, in common with most observers, found that alcohol, moderately taken, increases both rapidity and fulness of the pulse. Very little effect is produced upon the temperature of a healthy person, or upon the elimination of nitrogen, by a small amount, according to Dr. Parkes; and he thinks it unlikely that a person can thereby peform more work on less food, though, by stimulating a failing heart, it might enable one to put forth an effort otherwise impossible.

Authorities differ about the comparative exhalation of CO_2, with and without ingestion of alcohol, and it is evident that there is no material difference. Competent and unprejudiced observers generally agree that a small quantity of fermented liquor or diluted spirit promotes the digestion of substantial food, especially of a fatty nature. Sweet wines and malt liquors promote nutrition, through the sugar and extractive matters which they contain, but are apt to be followed by indigestion, headache and gout, from the plethora induced.

The experiments of Dujardin-Baumetz on pigs showed that no pathologic changes follow the daily ingestion of ethylic alcohol at the rate of one grain to 1 kilogram of body-weight, when taken diluted at intervals. He and B. W. Richardson set the same limit to daily assimilation of alcohol by a healthy human adult, without disturbance to digestion or other injurious consequence. This, for a person weighing 150 pounds, would amount to 71. c. c. of absolute alcohol, or about 148 c. c. of brandy, whisky or rum, or 710 c. c. of claret—much more than a careful and intelligent person would choose to take. Even Anstie's limit of 59 c. c. daily of absolute alcohol would, in my judgment, be better divided by four, and then be taken largely diluted along with the two principal meals.

The effect of alcohol in large quantities is first excessive stimulation of the gastric capillaries and secreting follicles, followed soon by corresponding sedation, and by gastric catarrh, if often repeated. Strong spirits cause constriction by robbing the capillaries of water, diminish the flow of gastric juice, render the albuminoids less soluble, and seriously impair digestion. Taken in excess, alcohol can only be partially oxydized before reaching the liver, and in this organ the secreting cells are contracted by withdrawal of water from the capillaries, while the connective tissue is hypertrophied through stimulation. The eventual result is general contraction of the gland at expense of the secreting structure, and abdominal dropsy by pressure on the hepatic veins. Similar effects are produced upon the kidneys, but more slowly, as they are more distant from the stomach.

On the nervous system the effect of a small quantity of dilute alcohol is stimulation, with little or no reactive sedation. As the quantity is increased, especially if concentrated and taken on an empty stomach, the primary stimulation is shortened and the sedation magnified and prolonged. Intoxication may vary from maniacal delirium to profound stupor, and in either case the proper nutritive functions are proportionally disordered. Repeated excesses of this kind result in fatty degeneration of the nervous centers and softening of the arterial tunics.

There is no want of agreement among physiologists about the effects of excess in the use of alcoholic beverages, and no need of dilating upon this branch of the subject. It is now in order to notice the opinions of those who advocate total abstinence as the rule for all mankind.

Prof. N. S. Davis holds that both the carbonaceous and the nitrogenous elements of food contribute to tissue-growth and repair, and that animal heat results from molecular changes constantly taking place; while alcohol rather retards than promotes these processes, as shown by diminished body-temperature and elimination of CO_2. He asserts that alcohol has a greater affinity for the hemoglobin and serum of the blood than for oxygen, and consequently is not oxydized, so as to generate force in the forms of animal heat and muscular action. Undoubtedly the first demand of alcohol is for water, but this is not all. When taken in any reasonable quantity, it does not remain alcohol, nor in any case is it all eliminated from the body as such. Most of it is oxydized, and thereby its potential energy is developed into sensible force.

Dr. H. D. Didama of Syracuse, N. Y., asserts[1]: 1, Alcohol is not food; 2, does not promote digestion; 3, does cause gastric disturbances; 4, does not increase muscular strength nor promote physical or mental endurance. Like other teetotalers, he does not distinguish between moderation and excess. The above assertions are true in excess, but not in moderation suitable to the individual case. Excess in any instance is more than suffices for gentle stimulation of of the digestive and nutritive functions. Any degree of nervous derangement, whether mental excitement or torpor or muscular incoördination, means excess, from circulation of unchanged alcohol in the blood. He adduces the testimony of army and railway officers, Arctic explorers and trainers for athletic contests, that total abstainers bear extremes of heat and cold, sharp conflicts, long marches, exposure to storms and malarial infections better, and recover from fatigue and illness more speedily and thoroughly, than those who bounteously or sparingly partake of the flowing bowl. It is to be observed that he speaks of persons of full bodily vigor, amply supplied with good food, who do not need stimulation at all, and who could not be trusted to keep within the bounds of strict moderation. It is true that the rule of total abstinence is usually enforced in such cases, and the prudence of this course is admitted. On the other hand, there is evidence that a small amount of diluted alcohol will enable one to put forth increased mental and physical exertion for an emergency, to withstand cold with less suffering and recover from fatigue or prostration more quickly. Testimony to this effect is adduced and credited by the late Dr. W. B. Carpenter, in his excellent monograph on Alcoholic

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[1] Jour. Am. Med. Asso., Sept. 14, 1895.

Liquors. The difficulty is to keep within suitable limits. Most persons consider themselves qualified to judge for themselves in the use of alcohol, while they take medicines by the advice of physicians; and physicians themselves are no more prudent than the laity in their use of liquors. The explanation is, the appetite, rather than sound reason, is allowed to govern.

Dr. Charles H. Shepard[2] holds that the sense of well-being after taking alcohol is due to its benumbing influence; that its supposed building-up action is only an irritation from an effort of the system to get rid of the drug; that it exhausts vitality thereby more quickly, and therefore ought to be regarded as a poison. In support of the last conclusion he quotes Dr. Forel of the University of Zurich: "Alcohol, even when diluted, as in wine, beer and cider, is a poison which changes pathologically the tissues of the body and leads to fatty degeneration." Dr. Shepards adds: "Tea and coffee also belong to the same category of irritant drugs, which, by rousing the vital forces to get rid of the poison, provoke the action which is mistakenly supposed to be an added force, whereas the action is only one of self-preservation. Quinin is essentially nerve-poison and capable of producing a profound disturbance of the nervous centers." Dr. Shepard's consistency in adding tea, coffee and quinin to his list of poisons is incomplete without including the numerous condiments used in the preparation of food, with the exception of common salt, which alone can be regarded as a reconstructive constituent. They promote alimentation by rendering food more palatable and digestible; but they are injurious, when used to excess, as well as tea, coffee and alcohol. Shall they all be classed as poisons and be banished from our dietary?

Dr. I. N. Quimby thus discourses[3]: "What physician would be so bold or hazardous at this time, as to assert that the use of alcohol, even in a moderate way, did not have a tendency to produce various affections, such as congestion, ulceration and thickening of the gastric mucous membrane of the stomach, which did not in its turn produce indigestion, mal-nutrition and mal-assimilation, the result of which would have a tendency to produce disease of the kidneys, pernicious anemia, cirrhosis of the liver, fatty dengeneration of the heart, tubercular disease of the lungs, cerebro-spinal irritation, with softening and lessening of the resisting power of the red corpuscles of the blood, producing various affections of the respiratory, digestive and nervous systems? It is stated by Dr. Nordau, the famous writer and philosopher, who combines scientific knowledge and literary power and originality of thought, that there is going on a general degeneration of the race. And who is bold enough at this period of the world's history, to successfully deny or refute it?"

This alleged degeneracy of the race has been going on since Noah planted the vine and got drunk on its product, on coming out of the ark; yet, within the period of profane history, the span of human life has doubled and is increasing. France, Spain and Italy are producing annually, according to different estimates, fifteen to forty gallons of wine *per capita*, most of which is consumed at home, and this has continued for centuries; while the output of wine and beer in Austro-Hungary is about fifteen gallons annually *per capita*, and double this amount in the German empire. On an alcoholic basis, degeneracy in the latter progresses twice as fast as in the former. In these European countries children drink fermented liquors from the time they are weaned and follow the habit all their lives. Inasmuch as human life is steadily lengthening, popular education extending and military power growing, the present writer fails to see proofs of degeneracy.

Let us now view the alcohol question in the light of the doctrine of evolution. The most efficient factor in the elevation of all forms of life is survival of the fittest, from gradually acquired conformity with environment, whereby they grow to maturity and leave progeny endowed with increased faculty. At present the most destructive enemies of human life are the zymotic diseases, alcohol and narcotics. Proof abounds that the longer races have been subjected to these agencies, the less disastrous are the results. On the other hand, races newly exposed to them are immensely depopulated. Examples are found in the destruction of our aborigines by small-pox and alcohol. But the native population of Old and New Mexico, having been subjected to small-pox, with little or no modification by vaccination, for three and a half centuries, has acquired great tolerance and now suffers a low mortality. The races of tropical America have become so tolerant of yellow fever that total immunity is claimed for them by some writers, though on insufficient grounds. Syphilis has become much milder among the white populations of Europe and America during the last four centuries. The same is true of leprosy in India and China during unknown ages, in contrast with its recent invasion of the Hawaiian islands. The growing abuse of narcotics by the white races of Europe and America is contrasted by their moderate and almost harmless use in Hindostan, gained by centuries of habit. The general and intense craving for alcohol, so marked among the dark races of America, has mainly died out among those which have cultivated the vine for many centuries along the northern shores of the Mediterranean, by survival of progenitors who were temperate but not abstinent.

Even teetotalers allow that the worst effects of alcohol are produced by strong liquors, especially when taken on an empty stomach. Within the last twenty years the per capita consumption of malt liquors in our country has increased, while that of spirits has declined, and gross drunkenness has diminished. On the other hand, the consumption of spirits has greatly increased in France and that of wine diminished, since the ravages of vine-pests have seriously diminished the production of wine. Reasonable persons must agree that the changes are favorable to our country and the reverse to France. Another notable observation is the increasing use of such anesthetics as chloral, cocain, opium and its derivatives and the various coal-tar derivatives, especially where the traffic in alcoholic liquors has been most opposed by public opinion and legislation. There is a natural, and for many an irresistible, craving for some form of anesthetic, and it is reasonable to allow use of the least injurious, under suitable and practicable restrictions. Evidence abounds that the use of light red wines at the table is least injurious to average persons, and positively beneficial to most of the aged and debilitated, when taken in such moderation as to produce no appreciable effect upon the nervous system by excitement or stupor. Such use of alcohol would forestall

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2. Id., Sept. 28, 1895. 3. Id.

resort to anesthetic drugs, which seriously impair nutrition and ability for industrial pursuits.

For such persons as can not restrict themselves to moderate limits, who habitually use enough to effect perceptibly the nervous system, or who indulge in debaucheries which unfit them for business, there is no safety but in total abstinence. Likewise there are individuals who can not use tobacco, tea or coffee in moderation, and others who are extremely susceptible to their poisonous effects; and these too must abstain. It would be wrong to condemn all to deprivation because a few indulge to their detriment, and so far legislation has not been invoked to repress their use. It is proper to distinguish between excess in these and excess in alcoholic beverages, because the latter is more prevalent and harmful.

In the writer's judgment, it would be wise for government to put upon the manufacture of spirits used as a beverage the heaviest excise compatible with successful collection, a moderate excise on fermented liquors derived from grain and hops, and to encourage the production of light table wines by leaving them free. Moreover, it is desirable to diminish the number of tippling houses, and this is most effectually accomplished by imposing so high a license-tax as to suppress nearly all. Licensed dealers then, instead of combining to resist the law, would unite in its support, in order to prevent encroachment on their dearly bought privilege. In order to discriminate between bar-room and home consumption, it would be advisable to impose a lower license for sale of fermented liquors than that of spirits, and lowest on sales of one gallon and upward of all liquors. This could be effected by separate licenses for fermented liquors, and for liquors in bulk and by the glass for consumption on the spot.

It is undeniable that the liquor traffic is responsible for much of the crime and poverty which afflict society and much of the disease which shortens human life. The question of its control is one of the most serious and difficult problems which confront moralists and legislators. In the opinion of the writer, it should be dealt with by practicable methods, in the spirit of truth. It is untrue that alcohol is, on all occasions, under all circumstances, at all times, in all quantities, a poison, and therefore harmful. It is no more true of alcohol than it is of all the condiments used in our daily food, of tobacco, of most of the medicines that physicians prescribe. They all have their uses, and the harm comes from their abuse. Except as a medicine, alcohol should only be taken largely diluted, along with food or soon after eating, when it aids digestion and forms an addition to ordinary food. Most of our people in their usual health do not need it and are better off without it. Undue plethora is the least harmful of its effects on those who have plenty of wholesome food and stomachs suited thereto. Many who do not need alcoholic beverages, but are content to use them in moderation, readily become tolerant, as they do of tobacco, tea and coffee. Such are many millions of consumers of light wines and beer in Europe, and there is the strongest probability that, if deprived of their customary beverages, they would resort to substitutes more energetic and positively harmful, as is actually the case recently in France. Witness also the increased use of narcotic and anesthetic drugs in this country, under stringent repression of the liquor traffic.

The subject has been clouded by fallacies to such degree that most people fail to distinguish between temperance and total abstinence, moderation and intemperance. The utterances of those engaged in the crusade against alcohol are of the most intemperate character, abounding in loose statements and bad reasoning. The preaching of brimstone and hell-fire is rapidly dying out in our pulpits, because intelligent persons discredit the doctrine and are disgusted by it; and now, in the clear sunset of the nineteenth century, it is an anachronism to invent false alarms, which do not frighten people of average sense.

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HUMAN FOOD LAWS.

Presented to the Section on Physiology and Dietetics at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1-4, 1897.

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"The comfort, energy, usefulness and moral character of a man depend largely upon his digestion, and this in turn depends largely upon what it has to act upon, viz., food." (Wm. Pepper.)

In view of this it is strange how little interest man has taken in the regulation of the quality of that food. First and last, in one place or another, mankind has eaten nearly everything which by mastication could be made small enough to pass down his throat. But the great mass of humanity always has and does still subsist upon a few abundant, nutritious and easily obtainable foods. Such are found in fruits, grains and vegetables. Different peoples and races have made use of quite different kinds of foods. But with the more intimate knowledge of others' tastes, each of the so-called civilized nations has adopted certain of the customs and habits of others, and among them the foods. Thus our dietary has rapidly increased. Not until recent years has there been any careful scientific study of man's needs, and still more recent have been the attempts to really satisfy those needs. There can be no doubt that too much food does fully as much harm in the world as too little, and too much of any one kind far more than either. Good evidence of the advantage derived from a regular ration of food arranged on a scientific basis is seen in the uniform good health of well managed modern armies and large institutions. Careful analyses of physiologists and chemists show just how many grams of proteids, fats, carbohydrates, salts and water are needed to maintain the average human life in its best equilibrium. We are becoming more and more interested in these questions, and are quietly making practical application of the lessons learned in the laboratories of the scientists.

But it may well be questioned whether mankind as a whole, and particularly that portion of it dwelling in these United States, are by any means ready to accept rules as to what and when they shall eat. Like animals or plants they insist on eating and drinking whatever they like or is most convenient.

With regard to the quality, however, there is really appearing considerable interest. No man likes to be cheated. Prove to him that he is being defrauded in the food he buys and he will make some attempt to check the fraud. If you can further prove that he is being injured by that food, another and stronger motive for interest is aroused.

The adulteration of food is of very ancient origin, and has from time to time been sharply checked. But such action has until recently always been spasmodic. The object of adulteration is to make money. The dilution must, therefore, be made with some material cheaper than the food itself, not readily detected by sight, taste, smell or touch, and if practicable not sufficiently harmful to cause rapid poisoning and consequent detection. The mere fact that the food furnishes insufficient nutrition or is slowly or indirectly harmful, does not at all trouble the rascally manufacturer or dealer.

In the matter of systematically stopping these frauds some European countries have been much in advance of the United States. Thus England, France and Germany had good laws before any serious agitation had begun on this side of the Atlantic. It would be interesting to compare these European methods with the best American methods, but time forbids. As matters of history, however, we may note that England passed extensive food laws in 1860, 1874 and 1879.

France has had quite definite laws for many years, gradually, without any great movement, reaching their present form.

Germany, too, has long had good laws in this matter, which were put in their present form in 1879.

At that time 231,478 analyses were made and only 3508 or 1.5 per cent. were found adulterated. In view of the fact that over 150,000 of these samples were milk, this is remarkable.

About twenty years ago Americans began to seriously think on the matter. A great many books and magazine articles were published and the public interest gradually aroused. Of course the medical profession led in the matter. Investigation showed that very many articles of food were adulterated to some extent. The United States Commissioner estimated this adulteration at nearer 15 than 5 per cent. When we consider that the value of the food consumed was $4,500,000,000, the enormity of the crime is apparent.

Most of the States have laws prohibiting adulteration in general, but the laws are not enforced and are not comprehensive enough. In 1879 careful study was begun on the subject by a committee consisting of the Vice-President of the National Board of Health and one representative each from New York, New Jersey and Massachusetts. These three States later adopted the recommendations of this committee. Ohio and Connecticut have since passed comprehensive laws in the matter and the results have been most satisfactory.

Since the United States' Special Agent, Alexander J. Wedderburn, says that "Massachusetts has very carefully investigated the question of food adulterations, and has probably the fullest and most complete laws upon the subject in this country," it will be helpful to consider the progress of the movement in that State.

When in 1870 the State board of health was established there were in existence a few special laws in regard to certain adulterations. There was no general law and no specially deputed persons for the enforcement of the special laws.

The first duty was the examination of the supply of fresh beef furnished to the city of Boston. Their report led to the enactment of laws which have served as models to other States. Then they found that 85 per cent. of the milk sold in Boston was adulterated—a great contrast to Germany. Other foods were almost as bad.

As a result of their continued reports to the legislature the general food law was enacted in 1882. A large number of examinations were made and numerous prosecutions instituted. What was more to the point many convictions were secured. Still in 1886 60 per cent. of the foods examined showed adulteration. Two years later, however, these were reduced to 36 per cent. and there has been steady improvement ever since. The report for 1894 showed 6874 samples examined by the State analysts of which 2190 were not up to the standard, a percentage of 31.91 of adulterations. This does not really show the amount of adulteration but only the per cent. in selected articles. The greater the care taken in the selection, the higher will be the per cent. found. The same improvement could be shown in New York, New Jersey, Ohio and Connecticut. But it will be more profitable perhaps to consider briefly these laws and how they have been and may be applied.

According to the Massachusetts law a food is deemed adulterated: "1, if any substance or substances have been mixed with it so as to reduce or lower or injuriously affect its quality or strength; 2, if any inferior or cheaper substance or substances have been substituted wholly or in part for it; 3, if any valuable constituent has been wholly or in part abstracted from it; 4, if it is an imitation of, or is sold under the name of another article; 5, if it consists wholly or in part of a decomposed, putrid, or rotten animal or vegetable substance, whether manufactured or not, or in the case of milk if it is the product of a diseased animal; 6, if it is colored, coated, polished or powdered whereby damage is concealed, or if it is made to appear better or of greater value than it really is; 7, if it contains any added poisonous ingredient or any ingredient which may render it injurious to the health of a person consuming it."

The members of the State Board of Health were made the agents of the Commonwealth to secure enforcement of this law and were given at first $3000, then $5000, next $10,000 and finally $11,500 to expend in so doing. Inspectors and analysts were appointed. Vigorous action has characterized the board from the outset. From 1883 to 1895 there were 1131 complaints made in court; and among these 626 were for adulterating milk. One thousand and twenty-eight convictions have been secured and fines amounting to over $25,000 imposed.

By provision in the statute three-fifths of the appropriation must be expended "for the enforcement of the laws against the adulteration of milk and milk products." It was found that the milk was occasionally colored by annatto, caramel or flour, but that the chief adulteration came by the addition of water or the removal of cream. It is stated on good authority that to the 120,000,000 gallons of milk brought into New York City in 1883 40,000,000 gallons of water were added.

In English cities the percentage of milk samples found to be adulterated is almost the same as in the United States. Thus 1633 out of 12,151 were found to be adulterated. France, however, does much better, there being only 279 frauds detected in 4315 samples. Doubtless this is due in part to the low standard.

This suggests a difficulty which has confronted the authorities from the first, viz., the need of a fair standard. After much study of averages it was fixed in Massachusetts at 13 per cent. of solids. New York and New Jersey require 12 per cent. of solids, of which 3 per cent. must be fats. England and France and

Holland only require 11.5 per cent. of solids, of which 2.5 per cent. must be fat. Ohio's requirement is the same as New York's. Apparently it is a little more fair than the 13 per cent. of Massachusetts. Evidence of this is seen in the fact that in the latter State of 3549 samples examined in 1894, 1597 did not contain 13 but did contain 12 per cent. The enforcement of the law in Ohio is entrusted to the Dairy and Food Commissioner, and last year he was allowed over $50,000 to expend. As a result he is able to report: "greater attention paid by dealers to the quality of of goods sold by them than has ever been done before. Immense amounts of bad goods have been shipped out of the State and manufacturers from all parts of the country are anxious to ascertain the requirements of law previous to sending goods into the State. In many cases manufacturers have informed me that they find it is necessary to put up one class of goods for Ohio and cheaper goods to be sent into States where laws were not enforced." He further declares "more work has been done in the prevention of fraud in the sale of food and drug products, and in the preservation of the public health thereby in the State of Ohio during the past ten years than in all the other States of the Union combined." All honor to Ohio! But shame on the other States!

But there are food laws which are manifestly unfair. Like many portions of our tariff laws they benefit only a few or a class.

About twenty years ago a French scientist named Mége-Mouriéz noticed that cows continued to give milk which contained cream, even though they were cut off from all fat-producing foods. Manifestly some of their reserve supply of fat must be transferred to the milk. He began to experiment with these fats and found that by proper chemic and mechanical means he could produce a compound closely resembling chemically and macroscopically the familiar butter. Physiologists tested it and found that for all practical purposes oleomargarine was as useful a food as butter. As it could be made for about one quarter the cost of butter, the discovery was hailed as a great boon for the poor. Suddenly the farmer awoke to the situation. He was losing the market for his butter. Legislatures were appealed to. A very large proportion of the legislators were farmers themselves. Countless stories, most of them false, were concocted telling of the foul constituents and dreadful methods used in its manufacture. The result is a series of laws which are practically prohibitory and the loss to mankind of a valuable food. As physicians we should do our utmost to promote a reasonable regulation of the manufacture of such foods; for we know how sadly they are missed in the dietary of the poor.

Another article of food which was found to be frequently adulterated was cheese. The milk fats were left out by skimming the milk, and other fats, lard most commonly, worked in. In the detection of these frauds the microscope has been very valuable. Numerous laws for the protection of the public have been passed in the different States, which in some respects resemble the oleomargarine laws. The fight has not been as bitter, however, nor the laws as unfair. Thus in New York, Wisconsin and Minnesota, makers of "full cream cheese" are allowed to use an official stamp. To use this stamp on any cheese not "full cream" is to render one self liable to severe penalties. Ohio and Colorado go a step further and require the "skimmed" and "imitation" or "filled" cheeses to be so stamped with an official stamp several inches square. The other States have not troubled themselves very much in this matter.

Flour is only rarely adulterated, for as we noted at the outset, adulteration is practiced only to make money. Sugar is another great staple food which is now only rarely adulterated. Owing to the ease with which the taste and color could be imitated, vinegar has been much manufactured. Some States, Massachusetts for instance, have therefore established by law the percentage of apple substance which vinegar must contain as well as the per cent. of acetic acid, viz., 4½ per cent. Honey and maple syrup are two common articles of food which need constant inspection; and there are a multitude of others. Let me quote a few of those frauds detected by the Ohio inspectors in 1896 and punished by Ohio's laws; candy containing the poison anilin black; tomato catsup containing salicylic acid; canned peas colored by oxid of copper, oxid of lead and oxid of tin; black pepper containing buckwheat, roasted cocoanut shells and cayenne pepper; molasses adulterated with commercial glucose; buckwheat flour adulterated with wheat flour; cloves deprived of oil; green peas colored with the salts of copper; cider containing salicylic acid; raspberry jelly made of ether, alcohol and anilin red; current jelly composed of glucose syrup and salicylic acid; coffee adulterated with chicory, peas, corn and wheat bran. Truly the American is ingenious!

These facts are not secrets. . Why, then, are there not more States with comprehensive laws? Why do not the States with good laws allow sufficient money to its agents to enable them to do good work?

More than seven billions of our money are invested annually in our food and drug product. Millions on millions of this finds its way to the dealer in adulterated products. And in these days it is the money power which secures legislation. Not always, however, and not necessarily. As physicians with a wide influence, let us agitate the matter, stir up and instruct public opinion, and it may not be many years before great results shall be attained both for the health and wealth of our people.

BIBLIOGRAPHY.

In Reference Handbook of Medical Sciences, "Food and Drug Inspection," Samuel W. Abbot; "Adulteration of Food," R. H. Chittenden; "Legislation Concerning Adulteration of Food and Drugs," Henry A. Riley.

Reports of Massachnsetts Board of Health, 1879–1896.

Report of Ohio Dairy and Food Commissioner, 1895 and 1896; "Food Adulteration and its Detection," Jesse P. Battershall; "Extent and Character of Food Adulterations," Alexander J. Wedderburn.

DIET IN THE CHRONIC CATARRHS OF THE GASTRO-INTESTINAL TRACT.

Presented to the Section on Physiology and Dietetics, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, June 1-4, 1897.

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In treating of diet in the chronic catarrhal inflammations of the stomach and intestines it is not intended to limit the discussion to those cases only which are usually classed as such. Our present exact methods show that chronic gastric catarrh in its earlier stages is rarely accompanied by nausea or vomiting and not always by pain in the stomach itself; also that cases of gastritis grave enough to have seriously impaired the health may be characterized by an increase rather than by a diminution of the appetite.

Again the same methods prove the frequent coexistence of catarrhal disease in the small intestines and persistent constipation or constipation alternating with diarrhea when the disease has become more advanced. Obstinate chronic diarrhea points usually to an aggravated catarrhal inflammation of the intestinal mucous membrane complicated in many cases with ulceration.

A proper regulation of the diet is important in most derangements of health—perhaps in all. In those involving the digestive system it is peculiarly important. The science of dietetics presupposes that the appetite is not a safe guide in all cases and experience abundantly confirms this view. In the matter of quantity alone there are numerous patients who habitually eat too much and many more who, in consequence usually of a faulty secretion of the digestive glands, eat too little. It can not be too strongly emphasized, however, that patients suffering with chronic catarrhal inflammation of the digestive tube require a strongly nourishing diet. Their nutrition is apt to be low and commonly shows a strong tendency to sink lower. A portion of their food fails of its intended purpose by undergoing fermentation or putrefaction instead of digestion and assimilation. In this way there occurs not only a positive loss to the organism of much needed pabulum, but a still greater injury through the absorption of toxic substances resulting from these morbid processes.

To offset the depressing effects of this two-fold injury there is often a craving for food in abnormally large quantities, which when taken in the three usual meals daily, embarrass the system and aggravate the existing disease by overburdening the viscera, producing stagnation and retarding digestion with dilatation as an ultimate consequence. One remedy in such cases is to prescribe more highly concentrated and nourishing kinds of aliment in the most easily digestible forms possible, and when this does not suffice to fulfil the needs of nutrition without overtaxing the organs, then to prescribe smaller meals and more of them.

Numerous theories are current as to the particular forms of diet best adapted to these catarrhal affections and much diversity of practice has resulted. A reliance chiefly upon the cereals, vegetables and fruits has been urged, especially in France, by Dujardin-Beaumetz and others, and still has earnest and honest champions in some of our American sanitariums. This vegetarian system, in addition to its cheapness, has a number of manifest advantages in its comparative asepsis, its laxative tendency, its palatability for most patients and its valuable nutritive qualities, maintaining the strength well and when it agrees often putting on flesh rapidly. Yet the observations of many physicians and my own experience in its use indicate that it is not a safe diet in the diseases now under consideration, except possibly in the mildest forms of intestinal catarrh associated with constipation. These foods disagree because they are highly fermentable and often irritating to the chronically inflamed mucous membranes.

A nearly exclusive milk diet has its votaries and in certain cases proves curative, especially when the milk can be obtained pure and comparatively fresh from the cow. The ordinary commercial milk of cities is always from one to three days old when served to the customer, and is often handled in such a careless manner as to become dirty and infected with all manner of germs, even when it escapes the grosser impurities resulting from its admixture with contaminated water and adulteration of drugs to counteract the effects of too long keeping. Happily, however, this difficulty has recently been well overcome in many of the larger cities and it is now possible, for the well-to-do classes at least, to obtain, in sealed jars, milk which when furnished by honest dealers, is comparatively pure and aseptic, and usually not more than twelve to twenty-four hours old.[1] Such a milk properly modified or diluted may be given very largely in many catarrhal cases with the utmost advantage, especially when a little good bread or toast or sometimes a few eggs are added to the daily allowance. But this method employed in a merely routine or empirical way without any exact knowledge as to either the motor power of the stomach or the faults in its secretory function is capable of doing harm. When there is much gastric dilatation or even marked atony, milk or any liquid taken in large quantities is liable to aggravate; and when the stomach is badly infected the same food is apt to ferment rapidly. It suits particularly well as a rule, in those forms of chronic diarrhea where the pancreatic secretion has been well preserved. However, as Ewald so well says: "It must also not be forgotten that an exclusive milk diet is a kind of slow starvation, and that to live on milk alone would require much larger quantities than the capacity of the stomach would allow."[2] Hence such a diet can not be long persevered in without unduly lowering the strength.

In chronic gastric catarrh Ewald and most of the German authorities advise a mixed diet without any very severe restrictions. They allow meats, eggs, milk and many of the carbohydrates, proscribing, however, freshly baked breads, etc., as well as the coarser vegetables, strong acids, sharp condiments and the stronger liquors. They recommend that the starches shall have been changed so far as possible into dextrin before their ingestion and object to dishes cooked with much fat. Ewald particularly objects also to fat meats and the oilier kinds of fish, hard boiled eggs and the tendinous parts of meat. Boas[3] takes very similar ground, but like various other German writers, prescribes diet tables with definitely weighed proportions of the proteids, fats and carbohydrates for each meal. Both Ewald and Boas very properly caution against too sweeping and arbitrary prohibitions of whole classes of foods in the diet of dyspeptics generally, since every patient has idiosyncrasies which need to be studied individually.

The American method of limiting these patients for a time mainly to lean meat and hot water, though on *a priori* grounds irrational and unsafe, has borne well the crucial test of experience in a large number of cases in the hands of several able physicians. In the bad cases the patients are put at once on the pulp of broiled lean beef or beef which having been finely chopped and deprived of all the fat and tendinous parts is afterward broiled in small cakes. With these is given usually a very small portion of stale bread or toast without butter and a very little raw celery or lettuce—sometimes also asparagus tips or stewed celery with occasionally one orange or baked apple daily or a few white grapes, the skins and seeds being rejected. Coffee and tea may or not be allowed, but the patient is required by most advocates of the method to drink from one to two quarts, and sometimes three quarts, of hot water every day. As improvement sets in and fermentation lessens, the number of articles permitted is gradually enlarged, but upon the first sign of a relapse the strict meat diet is resumed.

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[1] Dr. Samuel G. Dixon, president of the Academy of Natural Sciences, Philadelphia, has called my attention to the fact that sometimes the men who deliver these jars refill them without cleansing, which would be highly dangerous when they have stood for hours in infected sick rooms. B. R.

[2] The Diseases of the Stomach, by Dr. C. A. Ewald, New York, D. Appleton & Co., 1894.

[3] Diagnostik u. Therapie d. Magenkrankheiten, von Dr. I. Boas. Part II, Leipzig, George Thieme, 1895.

In other cases where the digestion is somewhat better, lean meats are allowed from the start in the usual forms of tender beefsteak and lamb chops, the fat and gristle being rejected.

Carried out with extreme rigorousness in cases adapted to it, this system of diet will in the course of four or six weeks, even without the aid of stomach washing, often greatly lessen fermentation. It will ameliorate markedly many stubborn cases of gastric or intestinal catarrh and according to the testimony of some of its most zealous champions, may even, when followed up later in a modified form, effect a radical cure, though not usually before the end of two or three years.

The more enthusiastic advocates of this exclusive diet recommend it as a rule in all cases of gastro-intestinal catarrh, and it can not be denied that in a considerable proportion of such cases when intelligently directed and faithfully carried out, it does well. It supplies an abundance of highly nourishing albuminoid material in a form which is comparatively easy of digestion, and at the same time is very much less fermentable than most other foods. It is also of small bulk, except when inordinately large quantities of water are taken, thus aiding in overcoming dilatation of the stomach and bowels. The chief objection to it is that the proportion of carbohydrates and fats is far too low to support nutrition well for any great length of time. Then, too, the large quantities of hot water often required to be taken with the meat in order to keep up a sufficiently active elimination, have important contraindications. When the heart is very weak, a serious embarrassment may result from throwing into the circulation such unusual amounts of fluid, and when there is much dilatation or even marked atony of the stomach walls, these conditions are almost sure to be aggravated by taking in so much fluid.

Another objection to the routine employment of such an almost exclusive meat diet is that it is excessively stimulating to the gastric glands in cases where hyperchlorhydria complicates chronic gastric catarrh.

Until recently the possibility of the coexistence of these two conditions was not recognized, but various observers have shown of late that we may have an acid gastritis that is a true catarrhal inflammation, along with a highly excessive secretion of hydrochloric acid. My own clinical work has confirmed this view. Experiments conducted in my laboratory have demonstrated, as mentioned in a previous paper,[4] that a meat diet powerfully excites the secretion of hydrochloric acid, thus tending to exaggerate the condition of hyperchlorhydria.

Numerous patients were put on a diet of meat mainly and the stomach contents analyzed every one to two weeks after the usual Ewald test breakfast. Some of these patients had in the beginning a normal proportion and others an excess of hydrochloric acid. The result was almost without exception a decided increase of the acid while on the diet. This was especially true in all the cases of the hyperchlorhydrics, except where the stimulating effect of the diet was counteracted by large doses of an alkali and sometimes even in spite of this. Evidently, therefore, this diet however useful in suitable cases, would be unsafe as a routine method in all, without thorough analysis and tests in every case.

Personally, I have found more difficulty in getting patients to carry out the meat-and-hot-water method, with the necessary strictness, for many months together, than in inducing them to submit to lavage with a diet somewhat more liberal though on similar lines. My results, too, in chronic gastric catarrh have been better since I have been employing lavage along with a diet in which lean meat, eggs and milk predominate, excluding sugar, shellfish, hot or fresh breads, fried foods, all the less digestible vegetables as well as the coarse cereals and restricting starch foods to a few of the blandest in small amount. Stimulants and the stronger condiments are cut off as a rule, to which there are some exceptions. All the more acid fruits, especially those with small seeds, and all hard and gritty articles incapable of perfect solution, are strictly forbidden. In the worst cases I frequently, at first, prescribe either the pulp of lean beef or juice expressed from the same as almost the only food for a few days. When perfectly fresh eggs can be had they are usually added, being eaten either raw, soft boiled or poached. The whites beaten up and taken raw agree well even when the stomach is very irritable and make an ideal food. Then gradually the dietary is enlarged, watching the effects upon the urine, mucous secretion, body weight and condition generally.

In the pronounced cases of gastric catarrh with an excess of hydrochloric acid (acid gastritis) I often find it necessary to restrict the dark meats especially, ordering eggs and milk instead, with the gluten preparations and a small amount of white wheaten bread, preferably in the dryer forms so as to obtain a larger admixture of the saliva. The farinaceous food in these cases should be predigested so far as possible by heat. It is sometimes well to let the patient take daily one lunch or light meal consisting mainly of bread or other preparations from grains, changed so far as it is practicable by heat into dextrin, as in the form of toast or zwieback or the various malted foods. Good fresh milk is a good accompaniment of such a meal. Otherwise he should be advised to take whatever carbohydrates there may be allowed, in the early part of one or more meals, following these later with meat or eggs. In this way the salivary digestion is given an opportunity of proceeding well on toward its completion before the time—usually about twenty to thirty minutes from the beginning of the meal—when the secretion of hydrochloric acid has become large enough to arrest the process.

In the cases of gastric atrophy in which there is practically no longer any secretion in the stomach, I have not found a meat diet to suit well as a rule, even when full doses of hydrochloric acid and pepsin are given. Sometimes eggs raw or lightly boiled agree better. Here, however, the best grades of the cereal preparations made of finely ground and bolted flours or meals with milk peptonized or not, according to the condition of the pancreatic and intestinal secretions and with the addition usually of a certain amount of eggs, has seemed to succeed best.

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[4] "The Excessive Secretion of Hydrochloric Acid by the Stomach and its possible serious Consequences." By Boardman Reed, M.D., International Clinics, vol. 1, seventh series, 1897.

But in the cases of chronic gastric catarrh in which the secretion of the hydrochloric acid is merely diminished, the results from a diet of meat and eggs chiefly are often excellent. To supplement the work of the stomach glands hydrochloric acid can then be administered in quite small doses with usually the happiest results.

Observations in my laboratory have shown beyond question that 0.3 to 0.6 c.c. of the dilute hydrochloric acid given during the period of digestion in such cases tend strongly to promote the secretion of the gastric glands, so that it is not uncommon to find after a few weeks of such treatment, even when not conjoined with other roborant measures, a largely increased percentage of the acid as shown by analysis after the usual test meal.

In intestinal catarrh the selection of the diet must turn largely upon the condition of the stomach digestion. When the case is complicated by hyperchlorhydria the diet above recommended for that condition will generally be the most suitable. These are cases in which a milk diet frequently gives the best result. The same with the cautious addition of meat juice and eggs will usually agree well in cases of intestinal catarrh with very small or absent digestive power in the gastric glands, provided any deficiency in the secretion of the pancreatic juice shall be made up by the administration of a good active extract of pancreas.

When the intestinal catarrh is conjoined with good stomach digestion—a not very frequent combination however—there may be a full allowance of meat along with the blandest vegetables and farinaceous foods, though even here milk and eggs will often agree better.

PHYSIOLOGY OF THE COLON, SIGMOID AND RECTUM.

Presented to the Section on Physiology and Dietetics at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

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In obscure cases of disease of the rectum and sigmoid flexure, inversion of the trunk seventy to eighty degrees, dilatation of the anus with Sims' speculum, inflation of the bowels and electric or reflected light (the former is preferable), are indispensable to a thorough ocular examination and diagnosis. In such cases I have used a rubber tube, eighteen inches long, with good results. By inversion of the trunk seventy or eighty degrees the pelvic and abdominal contents gravitate toward the diaphragm; a vacuum is formed in the rectum and sigmoid which become inflated with air under forced expiration and anus patulous and retracted with a Sims' speculum; the mucous folds are effaced, and the bowel has almost the appearance of a straight tube; on inspiration the bowel collapses and presents a curved tube, the mucous folds resuming their normal position.

The upper end of the rectum is much smaller than any other part of it, and presents a cavity closed from the sigmoid flexure, because the circular muscular fibers of the latter act as a sphincter, except during forced expiration and defecation; at such time the rectal cavity and lower part of the cavity of the sigmoid flexure seem one. Gray's "Anatomy," page 806, states that the sigmoid flexure is the narrowest part of the colon.

The rectum is cylindric, not sacculated like the rest of the large intestine. It is narrower at its upper part than the sigmoid flexure, gradually increasing in size as it descends and immediately above the anus presents considerable dilatation. It is capable of acquiring enormous size; when distended it is funnel-shaped and naturally is a closed cavity caused by approximation of Houston's folds and action of the circular muscular fibers. "The sigmoid flexure has great mobility, with the hand introduced into the bowel a point above the umbilicus has been reached."

Ocular examination of the cavities of the rectum and sigmoid flexures, though one is expert in handling instruments and focusing reflecting light on the parts to be seen, is no easy feat to accomplish except by practice. The subject to be examined should be slender and emaciated and willing to bear some slight pain and discomfort in the accomplishment of inspection; the sphincter ani should be previously dilated or relaxed and dilatable. If sunlight is reflected into the rectum the head of the patient should be toward the sun, if other light be employed it should be to one side—the left is preferable. The trunk must be inclined to the left side and inverted to an angle of seventy or eighty degrees and the thighs flexed; both should be supported on hard pillows. The speculum (Sims') is introduced into the anus and rectum, retracting the former, the lower and about half of the middle third of the latter with the coccyx. The nates must also be retracted. The anterior rectal wall, or recto-vesical wall, and anterior wall of sigmoid flexure are to be pressed forward out of the way by the blunt-pointed sound or applicator, or by inflation of air, the retraction of the anus and rectum pressing the anterior rectal wall and the anterior wall of the sigmoid flexure forward. The reflection of light or use of the electric lamp introduced within the bowel must be done simultaneously with forced and prolonged expiration.

The function of the sigmoid flexure is a receptacle for the feces as they pass from the descending colon, it being closed at its lower end by circular muscular fibers separating the sigmoid flexure from the rectum. The shape of the sigmoid flexure lessens or breaks the force of gravity of the feces; if the bowel at this point was a straight tube the intestinal contents would descend at once to the anus and cause continual inclination to defecate in the sitting or erect position. When the sigmoid flexure becomes filled normal reflex action by the spinal nerves is produced, causing contraction of the circular and retraction of the longitudinal muscular fibers, by which the length and lumen of the bowel are made less above; the circular muscular fibers of the lower end of the sigmoid flexure and those of the rectum, the sphincters ani included, relax and with the volition of the patient defecation is accomplished, the lungs being inflated, and the diaphragm and abdominal muscles contracted, thus lengthening the contents of the abdominal cavity.

Another function of the sigmoid and rectum and colon is to absorb nutritive enemata and sustain life in gastro-intestinal diseases. Physiologically the rectum is a closed and empty cavity (except during forced expi-

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[1] At Winchester, Ky., June, 1886, the author read a paper before the Kentucky State Medical Society on ulceration of the sigmoid cavity. "Inversion of Trunk, Electric and Reflected Light in Diagnosis and Treatment," which was published in the American Practitioner and News, Vol. 2, New Series, No. 17, August 21, 1886, at Louisville, Ky. On Nov. 30, 1885, the writer was the first to do sigmoidoscopy.

ration and defecation), and separated from the sigmoid cavity above by contraction of the circular muscular fibers of the latter at its lower end. The rectum has the following mucous folds, viz., the longitudinal fold at the lower part of the bowel and Houston's folds, each being half an inch wide and semilunar in shape, these are sometimes three or four, but sometimes only two. One is situated on the right side of the rectum near its upper end, one on the left side lower down; the largest one on the anterior rectal wall opposite the bladder and the posterior fold on the rear wall of the rectum an inch from the anus. These folds with the circular muscular fibers of the rectum and of which the sphincter ani is composed, together with the levator ani and coccygeus muscles, act as a support to the sigmoid flexure when it is filled with fecal matter. When defecation is postponed, though the desire is present and urgent and feces have passed into the rectum, the latter by contraction of its circular and longitudinal muscular fibers (the mucous folds acting as valves or elevators) returns the feces to the sigmoid cavity. After the desire to defecate has passed the rectum is found to be empty. But, should defecation be habitually postponed from day to day or two or three times a week, though demand is urgent, the bowel becomes habitually distended, fails to contract or retract, and the rectum instead of being physiologically empty, becomes pathologically distended and relaxed. Constipation or diarrhea would then cause the same relaxation of the involuntary muscular fibers.

The glands or crypts of Lieberkühn are simple tubular depressions of the intestinal mucous membrane, thickly distributed over the whole surface both of the large and small intestine. In the small intestines they are visible only with the aid of a lens, and their orifices appear as minute dots scattered between the villi. They are larger in the large intestine and increase in size the nearer they approach the anal end of the intestinal tube; in the rectum their orifices may be visible to the naked eye. In length they vary from 1/180 to 1/160 of an inch. Each tubule is essentially similar in construction to the intestinal mucous membrane, viz., a fine basement membrane, a layer of columnar epithelium, many of which cells are goblet cells lining it and capillary blood vessels covering its exterior, the free surface of the columnar cells presenting a striated appearance.

The mucous membrane of the large, like that of the small, intestine is lined throughout by columnar epithelium, but unlike it is quite destitute of villi, and is not projected in the form of valvulæ conniventes. Its general microscopic structure resembles that of the small intestine, and it is bounded b low by the muscularis mucosæ. The general arrangement of ganglia and nerve fibers in the large intestine resembles that in the small.

Glands.—The glands with which the large intestine is provided are of two kinds, the tubular and the lymphoid. The tubular glands, or glands of Lieberkühn, resemble those of the small intestine, but are somewhat larger and more numerous. They are also more uniformly distributed. They increase in size the nearer they approach the anal end of the intestinal tube. In the rectum their orifices may be visible to the naked eye.

Nutritive liquid material in the rectum, sigmoid and colon enters the circulation through osmosis and filtration. Crystalloid substances as alcohol, sugar, ordinary saline substances should be combined with the liquid nourishment to hasten absorption.

The diffusibility of the substance to be absorbed is one of the chief conditions. It should be a liquid or gaseous one, as the less dense the fluid the more speedy, as a general rule, is its absorption by the lymphatics and blood vessels. The more anemic the patient and the less congested the blood and lymphatic vessels the more rapid is the absorption process. The more tense the vessels the less rapid is absorption; absorption may be entirely suspended from arrested function, by congestion and inflammation of rectum, sigmoid and colon with full and tense vessels, therefore a healthy rectum, sigmoid and colon are highly essential to feeding by this route. The more rapid the circulation, without inflammation, in rectum, sigmoid and colon the quicker is absorption accomplished. A colitis, sigmoiditis or proctitis with or without anal fissures, ulcer in lower third of rectum, acute or subacute inflammation of hemorrhoids or malignant disease will interfere seriously with feeding per anum. At least once a day the colon should be washed out with a warm antiseptic solution of from one to four pints; the patient in Carpenter's posture, viz., on left side, left shoulder and side of head with hips raised to an angle of 40 to 80 degrees. Through gravitation and retrograde action of the longitudinal and circular muscular fibers of the rectum, sigmoid and colon the enema will reach the caput coli. Weak crystalloid solutions are more readily absorbed than strong ones. The chlorid and the carbonate of lithium are most easily absorbed by an empty stomach and doubtless the same is true of an empty colon. The epithelium as well as the glands and blood vessels is a prominent factor in colonic absorption and alimentation. Strychnin in solution and some other drugs are more quickly absorbed by the rectum than by the stomach.

Dr. J. Peyton of Stanford, states that he nourished a lady for three weeks by rectal alimentation with peptonized beef, white of egg and sweet milk given every four to six hours. Patient had gastro-enteritis; recovery followed.

A physician of Louisville nourished for more than a year a patient who had ulceration of the stomach, with sweet milk and whisky only, per rectum.

Another physician nourished a patient three weeks with enemata of bovinine. Patient was weighed before and after this method of feeding and had not lost any flesh.

Mrs. ——, age about 43 years, had mental aberration and would not eat or swallow her food. Family would not consent to feeding by stomach tube, hence rectal alimentation was used. Four to eight ounces of warm milk and a tablespoonful of whisky were given every four to six hours, with hips elevated high during and for half an hour after the use of the nutrient enema. Rectal treatment continued three weeks. Recovery of patient complete.

Mrs. A. T., age 44 years, had mental aberration; would not eat or swallow. She was nourished for six weeks with enemeta of sweet milk, whisky, quinin and sodium chlorid administered high up in the rectum by elevating the hip from 40 to 60 degrees. With elevation of the hip on the left side the pelvic contents gravitate to the diaphragm, the rectum and sigmoid retrograde and the nutrient enemata are forced into the descending and transverse colon. Inunctions and massage with olive oil every four hours were also used. At the end of six weeks the patient was stronger and had gained some flesh. Unfortunately she was not weighed before and after the course of treatment. The patient recovered.

Miss ——, age 28 years, had typhoid fever. Deafness, amblyopia and semi-unconsciousness occurred in the third week of the disease, with inability to swallow. There were no signs of hemorrhage of the bowels at any time; pulse was exceedingly feeble and dicrotic, often imperceptible. Hot or warm milk, c.c. 118 to 237; sodium chlorid, grams 2, and whisky, c.c. 30 were given, per rectum, every four to eight hours night and day for three months or more. At times the whites of one or two eggs were added to the milk, or a warm eggnogg was given per rectum.

L. T., age 2 years, a negro child, first had scarlet fever, then diphtheria. In three weeks from date of contracting diphtheria the palatal and pharyngeal muscles were in a state of paresis, and patient could not swallow. Rectal feeding was resorted to with satisfactory results. Milk, c.c. 118; whisky, c.c. 7.4; quinin, grams 13, and salt, gram .65 were mixed and injected warm into the bowel every four to eight hours. Rectal feeding was continued over a period of two months.

The writer has repeatedly passed enema to caput coli by elevating the hips.

A patient now at the Joseph Price Hospital, Stanford, Ky., who had chronic gastro-enteritis for years had a subacute attack and for three weeks or more has been fed with nourishing and stimulating enemata and is improving nicely.

The last four cases, in addition to the stimulating and nutritive enemata, were given the tincture of nux vomica.

Aphorisms.—The rectum, sigmoid and colon must be washed out once or twice a day with hot sterilized water to which has been added carbolic or boric acid.

Hot or warm soothing, non-irritant, nourishing, stimulating or sedative and tonic aseptic enemata can be used in rectum with impunity. Whisky, brandy, alcohol, salt, sugar or sodium carbonate are crystalloids and hasten absorption. By bringing to the boiling point, then adding pancreatin, sodium carbonate or sodium chlorid prepares milk for colonic and sigmoid absorption. Elevate the hips of the patient to 40 or 60 degrees, secure the advantage of gravity and the retrograde action of the rectum and sigmoid from anus to caput coli. When the hips are thus elevated the anus and lower rectum lose their irritability and reflex excitability, the anus and lower rectum if in a physiologic condition are made patulous and, with the coccyx, are easily retracted. The so-called "passing the rectal tube beyond the sigmoid into colon," as is taught by our college professors can not be done. The author has repeatedly proven that unless you place the patient in the "Carpenter posture" the tube is bent upon itself, one or several times, or the tip descends back toward the anus and the enema is found in the rectum. The safest, surest and best way to intubate the sigmoid is in the Carpenter posture, and best by Carpenter's sigmoidoscopy. Where there are hemorrhoids, anal fissures or ulcers in lower rectum, anal divulsion should be done as a palliative prophylactic measure, under anesthesia.

Rectal divulsions of the sphincters, besides its paretic and therapeutic effects on the lower end of the rectum and anus, causing rest, making the anus patulous and allaying irritability and curing pathologic lesions, has another function, that of nerve-stretching of the fourth sacral and inferior hemorrhoidal nerves, thereby cutting off connection between the spinal cord, the levator and sphincters, and placing at rest the bladder, rectum, vagina and perineum.

In the Carpenter posture the colon advances toward diaphragm, the sigmoid becomes elongated, loses some of its curves and becomes more like a straight tube—the longer the mesosigmoid the more elongated and less curved the sigmoid, and *vice versa*.

In rectal feeding the enema should always be as warm as can be borne. Beef peptonoids combined with warm milk, bovinine and water, with or without whisky or brandy, or hot milk with salt or sugar make nutritive enemata that can be alternated as required. If a tonic is needed, quinin, strychnia or tincture of nux vomica can be added to the nourishing enemata; if an anodyne, morphin, papin or laudanum can be given in the same manner.

IMPORTANCE OF PHYSIOLOGICAL KNOWLEDGE TO THE GENERAL PRACTITIONER.

Presented to the Section on Physiology and Dietetics, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, Pa., June 1-4, 1897.

BY ALBERT E. MILLER, M.D.
BOSTON, MASS.

The lowest form of life is a cell, which is defined as a minute mass of protoplasm. Each individual cell is of sufficient importance to have a life history of its own. It has its origin from some pre-existing parent cell, grows, fulfils its mission, produces other cells, wastes away and dies. All action is attended with waste. There must be food supplied in proportion to this waste or existence would cease. If the supply is less than the waste existence may be prolonged but must finally terminate. If the food supply equals the waste, there will be no apparent change. If it exceed the waste, there will be increase in growth. To keep an animal in a perfect condition the quality and quantity of food should be such as will best supply the place of that which is worn out. In the development of the infant after birth nature furnishes food which is typically perfect. In milk we find all of the various elements necessary for sustaining life and all that is necessary for the nourishing and building up of the tissues. In it we find albuminous material in the form of casein and serum or lac albumin, fats in the cream, carbohydrates in the form of lactose or milk sugar, salts in the form of calcium phosphate. All that is necessary for the development of every part of the system, bone, muscle, nerve, etc., in the right proportions. If from any cause we are obliged to substitute cow's milk, which is too rich in casein and fat, and deficient in sugar, we dilute with water and add sugar so as to bring it more nearly to the composition of human milk. Other foods may be successfully substituted if we keep in mind the exact composition of the typical food which nature furnishes. We should always imitate nature's food as nearly as possible unless from some diseased or deranged condition it is desirable to make a change to meet some morbid demand.

In its mother's milk the infant finds all that it needs for the growth of its body. The casein is used in the development of its muscles and gelatinous tissues. The cream is changed and deposited in the adipose cells or consumed at once to produce the animal heat.

he phosphate of lime is used to develop the osseous ystem which is now increasing rapidly. If there is change or necessity to meet, nature modifies the food ccordingly. In the case of the calf, colt and animals which commence locomotion very soon after birth, where exercise is often very great, the nitrogenous principle of the milk is increased. This excess of asein is necessary on account of the excessive waste esulting from the extra exercise. Judging from these acts we would naturally, as the child grows older and xercises more, change the food, increasing the nitrogenous principle in proportion, to meet the resultant waste. A knowledge of physiology will enable us to elect that kind of food which is demanded by the age, ondition and temperature. Foods are usually divided nto organic and inorganic. A very convenient subdivision is to divide the organic into first, nitrogenous; his embraces substances consisting of proteid, examples of which are albumin, casein, myosin, gluten, fibrin, egumen, etc.; second, non-nitrogenous, these are: a, amyloid or saccharin bodies, sometimes called carbohydrates; examples of these are starches and sugars; b, oils and fats, substances which contain carbon, hydrogen and oxygen, the oxygen being less than in the amyloids and saccharin bodies.

Inorganic: first, foods which furnish to the system the required salts; second, liquid food, this is chiefly water. After we thoroughly understand the best diet for perfect health, it is comparatively easy to select a diet for different temperatures and conditions. In very cold seasons and climates we require more heat-producing material. This is furnished by the carbohydrates and the oils and fats. In warm seasons of the year, or if our employment is in a warm room we should diminish the use of these articles in proportion to the change. If our employment requires great muscular exertion we should increase the tissue-making material; the proteids, foods which contain a large amount of nitrogen, such as albumin, casein, fibrin, gluten, legumen. These are to be found in eggs, beef, milk, bread, beans, etc. In diseased conditions we should select the food with still greater care. If, as in fevers and inflammations, there is an excess of heat we should diminish the amount or abstain from the use of heat-producing foods, such as starches, sugars, fats and oils. If there is a lack of exercise and a consequent lack of waste of tissue, we should lessen the tissue-making material. If there is an excessive waste of nerve tissue we should give our patients the kind of food that will compensate for this excessive waste. Experience has taught me that in the treatment of phthisis, neurasthenia and in fact all wasting diseases more may be done with food than with medicine. Medicine may be an aid but the great reliance should be placed upon the food. If in health we are made directly of the food we eat and our condition is influenced by that food, how much more important is this knowledge when our patient is wasting away from disease. Since putting these principles into practice I have not lost a case of typhoid fever and my success in the treatment of other diseases (most notably chronic) has been much increased.

The Initial Manifestations of Leprosy. Prof. O. Peterson concludes from a study of 1200 cases of leprosy, that the mucous membrane is first affected by the bacillus, especially the nasal mucosa. The first manifestation on the skin is in the form of spots, usually red, sometimes symmetric, either on the face or extremities. The nodules develop later.—*Wratsch*, No. 43.

THE REGULAR PROFESSION OF MEDICINE.

Read before the Kalamazoo Academy of Medicine at its Annual Meeting, Jan. 4, 1898.

BY W. H. HAUGHEY, M.D.

BATTLE CREEK, MICH.

The average medical writer is so deeply interested in scientific investigation as to rarely, if ever, think of writing on the subject of the regular profession of medicine. This probably accounts for the scarcity of articles seen on that important subject, but never was the scriptural injunction, "physician, heal thyself," more applicable than at the present time.

The term "regular" is but little understood by the the laity, most thinking that any one who assumes to be a doctor, and who obtains his living by the practice of medicine, is a regular doctor because he is nothing else, and while I would fain think otherwise, still I am forced to believe that there are some bearing that proud title that are not clear enough in their understanding of the definition of the word to be ready at all times and at all places, to give a full and clear explanation of its meaning.

I am frequently asked, "Doctor, are you an allopath or a homeopath?" My reply invariably is, "I am neither; I am a regular." That detestable sand-bur, allopath, that was thrown at the regular profession by Hahnemann and still continues to attach itself to our clothing, has done more to befuddle the minds of the laity than anything else, except the apathy displayed by the profession itself regarding it. If every member of the regular profession would immediately and positively repudiate the word as soon as, and on every occasion when it is, applied to us, the laity would soon discard it and we would hear it no more.

The members of the regular profession can no more justly be termed allopaths than they can be homeopaths. Accepting either implies that we rule out some things from our armamentarium, and thereby lessen our usefulness just that much. As the homeopathist uses "similars" to the exclusion of all other drugs, and the allopathist uses "dissimilars" to the exclusion of all others, it is plain that each by curtailing his source of supplies and depending upon those belonging to the creed of his adoption, has lessened his usefulness in exact measure to the therapeutic value of the remedies discarded.

The word "pathy" signifies narrowness, and if a sick man trusts himself to the care of one who follows a pathy, he must simply conform his sickness to the path or pathy. In other words, the practitioner, confident in the infallibility of his pathy, requires nature to conform herself to it, and if she does not, then the patient must die. Fortunately a large per cent. of sick people get well anyway, and nature unaided would effect about 90 per cent. of cures of some kind.

The regular profession rises superior to pathies, and uses anything under heaven that will relieve suffering humanity no matter from whom or what source it comes. Neither must you use large doses, for there is nothing to prevent a "regular" from using infinitesimal doses if he believes it best for his patient.

The regular profession rationally pursued requires a thorough knowledge of physiology, pathology and therapeutics. Then, given a pathologic condition, simply apply the rational therapeutic remedies to quickest and best aid nature to restore a physiologic condition.

There is but one science of medicine, and as science is broad as the universe, it follows that the science of medicine must be equally broad and embrace every agent under heaven, known or unknown, and is therefore forever at variance with a path or pathy. To the scientific mind there is something so supremely ridiculous in endeavoring to apply a pathy to science or science to a pathy, that were it not for the credence given those who proclaim themselves pathists, the subject would be considered too absurd for notice, but as these pathists are constantly advertising themselves as such, and then covertly using "regular" principles so far as they know, they are therefore practicing the most contemptible deceit on the laity and working a great injustice to the "regular" profession, for by using its principles to obtain results in their work, and then applying the credit of these results to their pathies, the "regular" profession is robbed of the credit due it, which being applied to the pathy makes a double injustice.

To illustrate: Some of the pathists depend so entirely on symptoms as to expose themselves to the charge of being symptomatologists. Now, what does that mean? It means that the remedy is to be decided by the symptoms present, therefore the symptoms must be developed before the remedy can be determined. In fact symptomatology pure and simple, teaches that it makes no difference what you name the disease if you closely watch the symptoms; for certain conditions will cause certain symptoms, so watch the symptoms, treat them and never mind the disease, thus placing entire reliance on symptoms.

Now, note the difference. The regular science of medicine teaches the all-important subject of pathology, built on a thorough ground-work of anatomy and physiology. Pathology, teaching as it does the nature of disease, enables us by our knowledge of it to know in a given disease what symptoms to expect from day to day. To illustrate more plainly:

Patient No. 1 treated by a "regular." Patient No. 2 treated by a symptomatologist.

The "regular" sees his patient and the first thing he does is to make the diagnosis, which he decides to be lobar pneumonia of one day's standing. Knowing the pathologic history of pneumonia he expects a crisis about the fourth or fifth day, and he immediately prepares as best he can for it by applying the known principles of therapeutics applicable to the case, and hopes with good reason to guide his patient safely past the danger point to a good recovery.

The symptomatologist sees his patient and notes fever, quick pulse, rapid respiration, pain in chest or stomach, cough. For each he leaves an appropriate remedy. Next day symptoms, fever, rapid pulse and respiration, more pain, nervousness, cough, which requires a slight change in remedies left. Third day, more pain, cough, very nervous, wakeful, perspiration, another set of remedies required. Fourth day delirium, different remedies. Fifth day patient is dead and no remedies required.

I am aware that I have painted this picture black, but I have seen just this happen, and I wish to ask in all candor which patient has the best chance for his life, the one who has his disease correctly diagnosed from the start, and is under the care of a physician who bends every effort to forestall those fatal symptoms that he knows do occur in the history of the disease, or the one whose disease is not diagnosed and the medical attendant follows along behind treating the symptoms after they arise? Should he do otherwise he will be applying "regular" principles, and the results obtained should be credited to the regular profession.

Let me exhort all who proclaim themselves pathists to follow each his own respective pathy or creed vigorously like a man, or if you deem your pathy insufficient, then drop it altogether and come into the regular profession body and soul. The profession is broad enough to furnish you ample scope for your faculties, and will receive you with open arms when you come with an honest purpose, but be honest. Be one or the other, but do not practice one and give the credit to the other.

Let "regulars" employ every opportunity to proclaim themselves such. Never allow the word "pathy" to sully your garments or tarnish your fair name. Repudiate it whenever, wherever and by whomsoever applied. Do it with kindness and dignity, and neither you nor the profession will suffer thereby.

While there are many good, ample and sufficient reasons why a regular should not call an irregular to consult with him; still if the patient has been employing an irregular and needs your counsel, it seems to me your duty is plain, for as the regular profession embraces everything under the sun that can help the patient, it certainly embraces all the pathist is doing and whatever is to be done besides, and if the pathist will give you due credit for your advice and you can agree pathologically, you may do the patient good and still preserve your professional dignity.

SOCIETY PROCEEDINGS.

The Quarantine Convention of the South Atlantic and Gulf States.

The Program outlined was Changed.

The Convention Decided to Discuss the Questions of State and National Quarantine Before Anything Else.

The quarantine convention of the South Atlantic and Gulf States convened in the Princess Theater, Mobile, Ala., at 10:40 A.M., Wednesday, February 9.

At that hour Dr. W. H. SANDERS, State Health Officer, requested all the members of the executive committee to take seats upon the stage.

This request was acceded to by those present, and when Governor Johnston ascended the stage he was greeted with applause.

Dr. Sanders then, as chairman of the executive committee, nominated Governor Joseph F. Johnston for temporary chairman. This nomination was greeted with applause, and was adopted.

Governor Johnston took the chair and announced that the convention would be opened with prayer by Rev. J. R. Burgett, D.D., pastor of the Government Street Presbyterian Church.

At the conclusion of Dr. Burgett's prayer Governor JOHNSTON said in substance:

"It is hardly necessary for me to say that the people of this State feel gratified to have you here, whether you come from our own State or from other States of this grand Union; and so long as this fair city stands here by the sea, so long will Alabama welcome the representatives of other States within her borders. We are glad to have you here—representatives of Texas, Louisiana, Florida, Georgia, the Carolinas and other States. If an armed enemy threatened our shores, it is to those States adjoining us that we would turn for aid. When we come to consider the entrance of an enemy worse than an armed foe, it is to these States that we look for aid. This insidious enemy threatens our lives, our commerce and business interests, and we are here to devise the best means of keeping out this disease. I am not going to lengthen these proceedings by making a speech, but will turn the business over to the convention believing that methods can be devised hereby the States and National government, each in its own roper sphere, can control these matters of quarantine."

On motion of Dr. Sanders, Dr. H. A. Moody, was elected mporary secretary.

Dr. Sanders moved the appointment of a committee on credentials to consist of one from each State; adopted.

Mr. John B. Knox of Anniston moved that the list of States e called and the delegates send up their names to the secretary; adopted.

The secretary then called the roll of States, and the deleates sent up their names to the secretary.

Governor Johnston then appointed the following committee n credentials:

Hon. P. W. Meldrim of Georgia, Dr. S. R. Olliphant of ouisiana, Dr. H. A. Moody of Alabama, Dr. J. H. Purnell of ississippi, Dr. R. P. Daniel of Florida, Dr. H. B. Horlbeck f South Carolina.

Dr. Sanders moved the appointment of a committee on peranent organization, to consist of one member from each tate; adopted.

Governor Johnston appointed the following committee:

Dr. W. H. Sanders of Alabama, Mayor C. A. Collier of tlanta, Dr. N. L. Clarke of Mississippi, Dr. Bat Smith of exas, Dr. Edmond Souchon of Louisiana, Dr. H. B. Horlbeck f South Carolina, Hon. J. E. Grady, J. L. Ludlow of North arolina.

On motion a recess of fifteen minutes was taken to allow the ommittees to formulate their reports.

Dr. Edmond Souchon of New Orleans, read the following ajority report of the committee on permanent organizations:

Dr. C. P. Wilkinson of Louisiana, president; Dr. R. P. Daniels of Florida, J. L. Ludlow of North Carolina, Dr. H. B. Horlbeck of South Carolina, Dr. Bat Smith of Texas, Dr. O. B. Quinn of Mississippi, Hon. Leslie E. Brooks of Alabama, Charles Chassaignac of Louisiana, Clarence Knowles of Georgia, vice presidents; Dr. H. A. Moody, secretary.

The committee also recommended a change in the program so that the first matters of discussion be the subjects of State and National quarantine, and that all questions relating to these matters outlined in the program proposed by the executive committee be considered together.

Dr. Sanders submitted a minority report urging that the program remain as outlined. He said it had been drawn up carefully after a good deal of correspondence and those matters placed first were the bedrock upon which the whole subject of quarantine is based. He urged that the program be adhered to.

Dr. Horlbeck of South Carolina, held that the matters of State and National quarantine were the bedrock of the matters for the discussion of which the convention has been called.

The majority report was adopted as to permanent officers, and Dr. Wilkinson was called to the stage. As he took his seat he was applauded.

He thanked the convention for the honor conferred upon him.

He then called for the report of the committee on credentials, and Dr. Moody, chairman of that committee, reported that it would be several hours before a roster could be completed, and that those present be recognized as prima facie delegates until the roll is complete.

There being no objection, it was so ordered.

It was moved the majority report be adopted.

Dr. Sanders moved a substitution of the minority report for the majority report.

Mayor Collier of Atlanta said that this convention met for business and we want to get to business at once. The whole country recognizes that the great practical question to be considered by this convention is the question of National and State quarantine. The program has been lengthened out over a number of topics that will take up an entire week or more. Why, the Senate of the United States has been asked to stop its deliberation till this question can be passed on by this convention. One of the subjects is "What constitutes an original package?" Why, the supreme court of the United States has not been able to settle that question. Let us get down to the discussion of practical questions and leave such topics for experts.

The vote was then taken on the substitution of the minority for the majority report, and the motion to substitute was lost.

The majority report was adopted by a large majority.

Dr. Souchon, chairman of the committee on permanent organization, then read the order of business as to consideration of the program: Nos. 1, 2, 3, 4, 12, 29 and 36, then to follow the program as outlined.

It was moved and adopted that papers be limited to twenty minutes and discussion to five minutes to each speaker, and this rule be inviolable.

Hon. Hannis Taylor then read the following paper:

QUARANTINE WITH REFERENCE TO INTERNATIONAL RIGHTS AND INTERESTS.

To me has been assigned the duty of opening the deliberations of this convention by a brief dissertation upon "Quarantine with reference to international rights and interests." I find from investigation that the plague, yellow fever, and Asiatic cholera have been the two great spreading diseases, which have been the main causes of the precautions which modern nations have been forced to take to protect themselves against epidemic invasions.

If we seek the beginnings of the history of quarantine we find them in the precautions taken by Venice, Genoa and Marseilles, in the fourteenth and fifteenth centuries, to prevent the introduction and spread within their bounds of the plague, a disease coming from the East. When we turn our eyes to the new world, we find, apart from occasional visitations of cholera, the chief object of quarantine on the American continent and adjacent islands has been to prevent the importation of yellow fever from Brazilian, West Indian and Peruvian ports, where it exists in an epidemic form. We of the South have special reasons to know quarantine for us means something to protect us from the invasion marching mainly but not exclusively from the harbors of Havana and Rio de Janeiro. I remember that the late Dr. Cochran, who in his day, was looked upon as a master of the subject of public hygiene, told me many years ago that the place for us to fight yellow fever was in the harbor of Havana. He said that if he only had the power so to purge that cesspool of filth and corruption as to put it in a sanitary condition, he believed that yellow fever could be strangled in its most dangerous lair. With that accomplished, as he thought it could be, by efficient government in Cuba, he said that the protection of our Southern ports against the invasions of yellow fever would become comparatively easy. In the light of these plain facts, it is not hard to demonstrate that every nation has a direct and urgent interest in the quarantine regulations of a neighboring State, especially when that neighboring State is the hot bed of a malignant and contagious endemic disease that is liable at any moment to cross the national boundaries. In our own case the harbor of Havana is the object lesson to which we naturally turn for illustration. I have been informed by an eminent member of our consular service, who resided there for nearly twenty years, that as an engineering problem, nothing is easier than the cutting of a canal a few miles long that would afford such an outlet to the pent-up waters at Havana as would render that harbor one of the purest in the new world. Considering that that focus of infection is only a hundred miles from our coast, as the crow flies, certainly the people of the Southern country have a direct and urgent interest that should enable us to demand that that port be put in a sanitary condition at an early day. But, when we come to consider the right, under the laws of nations, of one nation to demand of another the doing of such thing, we find nothing but a vacuum. In that particular, international law is necessarily defective by reason of the fact that each nation's system of quarantine is one of those matters of internal concern over which each sovereign state has supreme and exclusive jurisdiction. If you have a neighbor in your own town who keeps on the premises adjoining your own, some offensive or other thing that imperils the health and life of your family, you can so deal with him under the provisions of municipal law that he will be compelled to remove it. But, if a nation has a neighbor that keeps up a nuisance that imperils the lives, not only of its own people, but of all neighboring peoples, international law provides no remedy whatever. You can not invade the territory of the offending state, in order to force it to discharge its duty to itself and to humanity.

You can not send even a sanitary inspector within the limits of the infected state to study the disease in its lair, without its consent. In all such matters you can only fall back upon what is called the comity of nations. Only through international courtesy can we examine through officials the sanitary conditions of foreign ports that menace us most. Only through such courtesy are we able to take such precautions as we are now taking with the aid of our consular service in foreign lands. Because, as you all know, every consul's power to act in any foreign country depends upon his exequatur that may be withdrawn at any time. So when viewed from an international standpoint every nation has a direct interest in the quarantine system of every other nation; but no nation has any right whatever as a matter of international law, to interfere with, regulate or control, or even to pry into the quarantine system of another state.

Of course it would be perfectly proper and in order for all nations to unite in a Congress with the view of dealing with the entire subject of quarantine from an international point of view. There is no reason why there should not be quarantine union between the nations just as there is a postal union. If there could only be a general agreement in this matter, that each state owes a direct obligation to every other state that must be discharged under a uniform system of rules to be rigidly enforced by all, a wonderful advance could no doubt be made in the right direction. But as I have been called upon only to preface this discussion, I do not feel at liberty to trespass longer upon you.

DISCUSSION.

Hon. Leslie E. Brooks said that the progress in ocean traffic had made an intelligent and rigid system of quarantine necessary. He said that this was due to the fact that steamships could leave the shores of an infected country and reach our shores before the known period of incubation had passed. Quarantine was necessary as carrying out the law of self-defence. Quarantine is a conservative means to conserve the self-preservation. This country has a right, if other nations fail, to fall back on the right of self-preservation and quarantine against any other nation where infection exists.

Hon. Leslie B. Sheldon moved that such as desired be allowed to speak from their seats on the floor; adopted.

Mr. P. J. Hamilton said there are three things about yellow fever. What is it, how to treat it, and how to prevent it.

A Delegate—Are you speaking to the subject, which is international quarantine?

Mr. Hamilton—Yes, sir; we can prevent it by international quarantine. The nations of Europe are endeavoring to meet the question by some agreement between them, something in the nature of a treaty. Mobile and New Orleans have inaugurated the proper method. They have placed medical agents at infected ports, who report any danger at once. That is the way the United States can further the international quarantine. Let the United States take the lead in some convention with those countries south of us and let this matter of medical agents be perfected. There is one thing about yellow fever, and that is that prevention is better than cure.

Dr. H. M. Carter also spoke on the subject. He said that in most of the ports of Cuba the United States had sanitary medical inspectors, and that international law is no bar to United States officials serving in foreign ports.

Hon. R. H. Clarke said this convention ought to take some action looking to an application to the Government for the maintenance of a corps of medical experts in those foreign yellow fever ports. He moved the appointment of a committee of five medical gentlemen to name the yellow fever ports at which medical agents should be stationed, and to call the attention of Congress to the matter, as well as the holding of an international quarantine convention.

Dr. Hamilton of Chicago, spoke of what had been done in Europe by the nations in relation to quarantine, and of the Pan-American Medical Congress at Washington.

The committee on permanent organization reported the hours of business as follows: From 9 A. M. to 1 P. M.; 2:30 P. M. to 5 P. M.; 7 P. M. to adjournment.

The convention then recessed till 2:30 P. M.

AFTERNOON SESSION.

The chair called the convention to order after recess and announced the following committee to recommend appointment of medical inspectors at various foreign ports: Dr. John B. Hamilton of Illinois, Dr. S. R. Olliphant of Louisiana, Dr. H. R. Carter of the Marine Hospital Service, Dr. R. P. Daniel of Florida, and Mr. P. J. Hamilton of Mobile.

FEDERAL AND STATE POWERS AS TO QUARANTINE.

Hon. Edward H. Farrar then read a paper on "Federal and State Powers as to Quarantine." He said the line of demarcation between the two had been the battle ground of lawyers, judges and politicians for years past. He then discussed at length the legal aspect of the question, and cited the creation of the general government, which he said could have no power, except expressed in the instrument showing the grant of powers to it by the States, and referred to the adoption of the tenth amendment. The speaker discussed the relations of the States to the general government, and said that matters of quarantine were reserved to the States unless they had been expressly relegated to the general government. He spoke of the different factions in construing the constitution of the United States, and cited a large number of legal authorities and opinions of Chief Justices Marshall and Story and other justices of the United States supreme court.

Quarantine laws are health laws and belong to the police power, which have never been taken from the State, and in which rest the protection of the health, life, well-being and prosperity of the people. He held that if the State did not pass laws to prohibit nuisances, the spread of disinfection, the punishment of incendiarism, murder, assaults, etc., congress can not pass such laws. He cited a number of authorities to show that the police powers of the States had never been delegated to the general government.

He held that as quarantine laws had been classed as part of the police powers of the State, and that such police power had never been delegated to the Congress, therefore there was no power implied or expressed in Congress to pass quarantine laws.

If quarantine laws control commerce between states and nations, Congress can deal with them; but if they simply affect commerce, then the Congress has nothing to do with them, especially if they are bona fide health laws; I do not mean shotgun quarantine, nor those which prevent a train from passing from one locality through another. I believe that the enactment of quarantine laws is therefore reserved to the States.

He cited a number of legal opinions and authority on the subject.

He held that Congress had no power to pass an exclusive quarantine act, regulating both maritime and internal quarantine, and the movements of persons and goods within the limits of a State. From 1799 down, the rights of the States to pass quarantine laws had been recognized, and if this power had been specially reserved to Congress, why was it that Congress had continually recognized the right of the States to pass such laws? He declared the State sovereign and deprecated the drift toward centralization and paternalism.

The paper was a very exhaustive legal argument in favor of State quarantine. The reader was called down by the time limit.

Unanimous consent was asked for the reader to continue, but objection was made.

Hon. R. H. Clarke then moved reconsideration of the provision limiting readers of papers to twenty minutes, which was adopted.

On motion, Mr. Farrar was then invited to continue his paper.

He thanked the convention for the courtesy and was roundly applauded.

During the continuance of his argument he was frequently interrupted by applause.

Hon. R. H. Clarke then spoke on the paper. This is a convention gathered for suggesting the best means of keeping yellow fever out of this country. No sooner does an epidemic of yellow fever break out than we begin to call on the government for aid. We want money, camps, rations and other things, but still we say to it "hands off." Such a state of things can scarcely exist. There are two divisions of quarantine. One is a boundary quarantine, and the question is, has the general government the right to say to a vessel that it shall not enter any port or proceed up any river or harbor. The government has the power to turn back from any harbor of this country men and merchandise. He argued that the general government had the power to do these things. Before the completion of the argument the time limit expired.

There was a motion to extend the limit, but Mr. Clarke asked that such motion be not put.

DISCUSSION.

Mr. Harry Pillans of Mobile said the paper did not raise the mooted question as to whether the State or federal authority was best to settle the matter of quarantine. He said that what is police power is yet to be determined. I have failed to discover an epidemic of disease this summer, but we did have an epidemic of fear and cowardice. The police power is one that can be reposed in a safe government when it is reasonably exercised. The enthusiasm of our boards of health has carried them far beyond their power. The Governor of the State has had the hardihood to say that no citizen should come out of Atlanta, a place not infected, and enter the State of Alabama. I have never heard of a more despotic ruling. There was absolutely no law in right or reason for such action. He spoke of the habit of cities or towns to quarantine towns between them and infected cities unless those towns did quarantine the infected city or town.

Dr. W. H. Sanders interrupted to say that no quarantine was declared until there was a case of yellow fever declared in Atlanta.

Mr. Pillans said it remained a fact, however, that many towns did threaten to quarantine Atlanta unless she did as many other inhuman cities did, shut her doors against fleeing women and children.

Captain J. M. Falkner said the Louisville and Nashville had lost thousands of dollars and he wanted to acquit the boards of health of wrong-doing. These medical gentlemen tell us that yellow fever does not originate in this country, then why stand here and shout about States' rights? The disease comes from without and Congress having the power to regulate the foreign commerce, she should have the power to keep this foreign enemy out. The announcement of a case of yellow fever in Mobile to-night would cause a greater stampede than the invasion of the entire Spanish army. Continuing, the speaker contended that the disease being a foreign importation, the general government should be charged with the power to resist such an invasion. It is the duty of Congress to resist the invasion of this disease as it would resist the invasion of a foreign army.

So long as Havana is infected with yellow fever all vessels coming from Havana, whether they have sickness on board or not, should be treated as infected and held in quarantine a sufficient time to preclude the possibility of infection. Congress should furnish all the money necessary and the men and plants necessary to keep out this disease. With the ports bidding for commerce and no uniformity of quarantine, it is not unlikely that we shall have a recurrence of the experiences of the past summer.

Health Commissioner Reynolds of Chicago, said it was the hope of Mayor Carter H. Harrison of Chicago, that some action would be taken at this convention to perfect the quarantine laws. He said that Chicago was interested in the commercial side of the question and that the producers all over the country were interested in the deliberations of this convention.

W. F. Vandiver of Montgomery, said he did not think the question of States' rights was pertinent. That was a political question and this is not a political convention. You can not expect reason from a lot of terror-stricken people any more than you can from a mob. We had an epidemic in 1873 that was frought with death, and plenty of it, and in 1897 the death rate was not so great, but there was more excitement and more loss. He related several experiences of the past summer and said that this convention should say to the United States that we charge you with keeping out the disease and if you let it get in we want you to hunt it out.

In answer to a question, he said he would place the matter in the hands of the National Government.

T. G. Bush of Anniston, then spoke. He said he was the fourth speaker in that immediate circle, which is proof of the spirit that moves us. He told two anecdotes and said that he believed the question had been settled. Once he was a member of the legislature, and whenever some members did not want to vote for a question they would say it was unconstitutional, but he told them the supreme court would settle that. He favored relegating the matter to the general government. He did not come as a mendicant, but he asked it as a right, as a child of the Government. We want uniformity. My railroad experience is that for two weeks we could not turn a wheel. We left Anniston, went through Atlanta and then came to New York; but on our return we came around Atlanta, but the quarantine officer refused to let me in. We want no repetition of this. We want common sense. We want uniformity.

Dr. Bat Smith of Texas, stated that Dr. Warren Stone said yellow fever was indigenous to New Orleans. You are hunting the focus of the disease in foreign ports, but if you will go around and make the people clean their city and then you will destroy the fever. A scavenger in Mobile or New Orleans is worth more than a health officer.

Dr. Charles Chassaignac called the gentleman to order and said the sanitary condition of New Orleans is not under discussion, and she is abundantly able to take care of herself.

The chair then read the Committee on rights of suffrage of delegates as follows:

Collier of Georgia, Clarke of Alabama, Grady of Florida, Corrie of Louisiana, Taylor of Mississippi, Ludlow of North Carolina, Horlbeck of South Carolina, Smith of Texas, McShane of Maryland, Hamilton of Illinois, Wingate of Wisconsin, Holloway of Kentucky, Robinson of New York.

Dr. Robbins of Mississippi, disclaimed any reflection on the Mississippi State Board of Health in his remarks at the morning session.

Dr. Robinson's paper.

Dr. S. A. Robinson of New York, then spoke on the subject. He said quarantine was a common cause against a common foe, and alluded to a private opinion submitted by him, which is as follows:

Influenced by the effects of cholera upon the business and social life of New York in 1892, the New York Board of Trade and Transportation then made a pretty thorough investigation of quarantine, and recommended the immediate establishment of a national quarantine system. Congress passed an act, entitled "An act granting additional quarantine powers and imposing additional duties upon the marine-hospital service," which was approved Feb. 15, 1893. Believing the proper administration of this act would exclude diseases quarantined against, or confine them to where they first appeared and promptly eradicate them, we felt secure. Now, influenced by what Southern commerce and society suffered from yellow fever in 1897, we are collecting information regarding quarantine and the prevention of disease in general.

Being a member of the committee selected by the board for that purpose, and thinking I could learn more from the gentlemen composing this convention than from any other source I am, thanks to your courtesy, here for that purpose. We are receiving a great deal of valuable information, all of which will be at your service as soon as it can be compiled and published, but we are especially desirous for your advice and assistance, and will in return do what we can to aid you in securing legislation that will best protect the people and the business of our entire country.

I think that quarantine, or disease limiting and preventing authority, must be uniform in order to be most effective. Not uniform in methods, for conditions vary and methods must meet conditions, but uniform in spirit and power. The idea that forty-five systems of quarantine (one for each State) could best protect the people of the United States seems preposterous. To thoroughly protect our entire population such authority and regulations must be National.

To ascertain the validity of the contention that the federal government can not constitutionally establish and maintain a national quarantine system, the New York Board of Trade and Transportation decided to consult one of the best authorities on constitutional law, and selecting W. B. Hornblower, obtained the following opinion:

Hornblower, Byrne, Taylor & Miller, No. 30 Broad Street.
New York, Jan. 24, 1898.

Frank S. Gardner, Esq., Secretary New York Board of Trade and Transportation:

Dear Sir:—In accordance with your request made some time ago, for my views on the subject of national quarantine, I beg to say that I have been so occupied during the past few weeks in court work, that I have had no opportunity until recently to examine the papers you have sent me and to give the matter consideration.

As to the constitutional power of Congress to establish a department of public health and to assume control of a general system of quarantine throughout the country, I have no doubt. I do not base this power, however, upon the "general welfare" clause of the constitution. To construe that clause of the constitution so as to cover this subject would authorize the assumption by Congress of any powers which at any time it deemed for the general welfare of the public at large and would absolutely abrogate the constitutional amendment which provides that:

"The powers not delegated to the United States by the constitution, nor prohibited by it to the States, are reserved to the States respectively or to the people." (Tenth amendment to the Constitution.)

I am of opinion, however, that under the clause of the constitution authorizing Congress "to regulate commerce with foreign nations, and among the several States, and with the Indian tribes" (Section 8, Article 1), a national system of quarantine can be established and maintained.

So far as concerns quarantine regulations affecting our international commerce, there can be no doubt that the present State regulations are lawful merely because Congress chooses to allow them to remain in force and are lawful only so long as Congress chooses. I so understand the decisions of the United States supreme court. These quarantine regulations operate as restrictions upon foreign commerce and as such can be at any time set aside by federal legislation, and Congress can itself assume jurisdiction over this subject.

The right to regulate commerce "among the several States" is as broad as the right to regulate commerce "with foreign nations." It follows, therefore, that Congress has the same right to establish and enforce quarantine regulations, as affecting interstate commerce, that it has to make and enforce quarantine regulations as to foreign commerce. With regard to vessels in the coasting trade, arriving at one port from another port of the United States, the same regulations can, of course, be easily applied that are applied to vessels arriving from foreign ports. The practical difficulty arises in the case of interstate communication by land. I have no doubt of the right of Congress to establish quarantine regulations which shall affect all railroads carrying passengers or freight from one State to another, just as by the interstate commerce acts Congress has assumed jurisdiction over the railroads with regard to rates, etc. As practically all railroads do an interstate business, directly or indirectly, by carrying passengers and freight in transit from one State to another, quarantine regulations could, therefore, be established over practically all railroads in the United States. Such a system of railroad quarantine would necessitate and would authorize the establishment of a United States quarantine station in the principal commercial city of every State in the Union, and this quarantine station could, it seems to me, effectively control the quarantine regulations of the entire State, co-operating, of course, with the local authorities as far as practicable. I do not see why a system could not be worked out on this line which would be efficient and satisfactory.

As to the desirability of a national quarantine, it seems to me there can be no serious room for discussion. Conceding the right of the government to interfere with the liberty of the citizen and with his rights of property, so far as may be necessary for the protection of the public health, the only question is, whether it is more expedient that this right should be exercised by the local government or by the State government, than by the general government? It seems to me that a uniform system administered by national officers is the only safe and rational method of administering this branch of government. Of course, the tremendous powers imposed upon quarantine officers are open to abuse, but such abuse by national officers would have a wider publicity and be subject to more direct remedial legislation than would the petty tyranny of local officers, especially where the sufferers from such tyranny would usually be non-residents of the locality where the officers exercise their authority. As quarantine is of necessity an interference with commerce, it seems to me that it is peculiarly a matter within the province of federal legislation.

Trusting that I have sufficiently answered your inquiries, I remain yours very truly, W. B. Hornblower.

Perhaps nothing marks the progress of modern civilization with more precision than the improvements in preventive medicine and hygiene. If we teach our people the value of these improvements they will demand that their legislators give them the benefit of them, and every true citizen of our country will welcome and promote the best possible system of quarantine.

Thomas Jefferson, then President, in a communication to Congress on the state of the Union in 1804, protested against the adoption of a code of laws to prevent the introduction of yellow fever. Our people have learned a great deal since 1804, and the response which they would make to such a protest by their President today would clearly indicate it. When they know what science can do to exclude and prevent disease they will be wise enough to unite in a determined and persistent effort—each for all and all for each—to secure every advantage it can confer, and will demand that safety and not sentiment shall decide and govern all that pertains to quarantine.

Dr. Bat Smith of Texas said that Texas wanted to place herself on record as desiring to police her own borders. She has the men and she has the means. She is willing to meet the Marine-Hospital Service half way, but she does not want federal interference and is not going to stand it.

A Delegate—Did not the Governor of Texas ask the aid of the federal government to stamp out smallpox at Eagle Pass?

Dr. Smith—Who was Governor?

The Delegate—Governor Hogg.

Dr. Smith—Oh, he was not responsible.

Hon. W. A. Kay of Georgia also spoke on the subject. He said the legislature of Georgia called on the federal government because they recognized it was a condition that Georgia and her sister States could not meet. You may pooh-pooh shotgun quarantine, but you must have a stronger power to put it down. He favored going to the general government to get the assistance so badly needed.

Mr. John B. Knox of Anniston spoke as follows:

Mr. Chairman: I had not intended to take any part in the discussion of the topic now before the convention, but since hearing the elaborate written argument against the constitutionality of the proposed legislation by the federal government on this subject, I feel impelled to say something upon the legal question involved.

I was surprised to hear it asserted by the honorable gentleman (Mr. Farrar) that the federal government as now administered is not a government by the people, and that the only government where the voice of the people is recognized is the government by the States.

Mr. Chairman, I do not sympathize with this effort to excite the prejudice of this convention against the national government. I have always been taught to believe that the system of government under which we live is the best ever conceived. It was the product to a large extent of Southern intellect and Southern statesmanship. In its conception and development the country had the benefit of the wisdom, experience and intellect of Madison, Jefferson, Washington, Henry and a host of others, who labored together to perfect the finest system of popular government that the world ever saw, and I think that no prejudice against our form of government can be aroused before a Southern audience by any attack upon the wisdom of the fathers in its formation.

Mr. Chairman, the constitution of the United States invests the national government with the absolute power to regulate commerce between the States and with foreign nations. This power is granted to the general government by the States. It is not granted with any proviso that it shall not be so exercised as to conflict with the police regulations of the States, and to become inoperative when it does; but it is absolute and imperative, and when properly exercised the powers of the States, so far as their police regulations are concerned, must give way.

I will not discuss the proposition that the State quarantines, not to say the shotgun quarantines in force in several of the Southern states during the year 1897, interfered with interstate commerce. To a large extent everybody knows that it not only interfered with interstate commerce, but absolutely destroyed it.

The honorable gentleman from Louisiana (Mr. Farrar) refers to two decisions of the supreme court of the United States which he condemns in the most intemperate terms. I listened with great interest to the reading of his paper and I failed to hear any opinion, or, if you please, any dictum, from the supreme court of the United States or any other court to the effect that the federal government had not the power to enact a general quarantine law.

On the contrary, I beg to call your attention to two decisions of that court, which seem to hold directly to the opposite.

The honorable gentleman contended before us with great earnestness that the federal government could only act in aid of the State government. My understanding of the law is just the reverse. Where the federal government has jurisdiction and it has been actually exercised, it is supreme and not subservient to the State regulations.

In the leading case of Peete vs. Morgan (19 U. S., 581) the supreme court of the United States, in passing upon the validity of State quarantine regulations, says: "They are enacted for the sole purpose of preserving the public health and if they injuriously affect commerce Congress, under the power to regulate it, may control them."

And again in a still later case, Morgan Steamship Company vs., Louisiana (118 U. S., 465), Mr. Justice Miller speaking for the court says: "Whenever Congress shall undertake to provide a general system of quarantine, all the State laws inconsistent with said enactment will be abrogated, but until this is done the laws of the State on the subject are valid."

The honorable gentleman from Louisiana (Mr. Farrar) does not attempt to answer these decisions. He says of the first that it is mere "judicial slop," and of the other, that it is mere "judicial gush." Mr. Chairman, both of these cases are announced as the opinion of the court, and the second opinion was delivered by (Mr. Justice Miller) one of the ablest judges who has sat upon that bench. And I submit, therefore, that the effect of these decisions is not to be destroyed, either by abuse of the court, or by the contempt expressed by the learned gentleman for the justices who wrote the opinions. And I may say, in conclusion, Mr. Chairman, that the question of the constitutionality of a federal quarantine law has recently received very careful consideration from a committee of the United States Senate, upon which were some of the best lawyers in the Senate, and a report was made, practically unanimous, sustaining the constitutionality of the proposed legislation.

Mr. Norman Walker of New Orleans, cited the report of the committee referred to by Mr. Knox.

Dr. Robbins of Vicksburg, Miss., said that the sentiments expressed against the General Government found no lodgment in the hearts of the people of Mississippi. They had seen the States utterly powerless to protect their citizens, and he for one had come here to appeal to the General Government to do that which the States are powerless to do.

Mayor Collier of Atlanta, protested against the sentiments expressed against the General Government, which he said is "my country." He said that he read of one board of health in Alabama which by a vote of four to three refused to admit ice, and another a carboy of carbolic acid. He said the system of quarantine in vogue last summer was a disgrace to civilization.

Mr. Farrar replied and said he never denied the right of the Federal Government to pass quarantine laws such as Mr. Clarke cited. He replied briefly and pointedly to the arguments put forward by the other speakers and showed his familiarity of the legal aspect of the State and Federal Government.

Hon. Hannis Taylor spoke upon the subject and said that the State quarantines had been broken down and routed and in Louisiana the Board of Health run out of office by an indignant people. He argued that the power to enact quarantine laws was reposed in Congress and said that the question was how best to formulate a law that would meet the desired end and at the same time reserve to both the State and Federal Governments their legitimate powers.

Dr. Sanders protested against Mr. Taylor's statement that State quarantines had been a failure.

Mr. Taylor said he did not mean the remark in that light. He meant that the boards of health as a whole had been routed.

Dr. Sanders, continuing, defended the boards of health.

Dr. Robbins, of Mississippi, asked if the people did not set at defiance the State boards of health. He said that such was the case in his State.

Mr. Knowles, of Atlanta, offered a resolution as follows:

Whereas, The experience of last year during the prevalence of yellow fever was sufficient to demonstrate the inefficiency of State, county and municipal quarantine regulations, as well as the resultant disastrous effect on commerce, travel, and the public comfort and safety; therefore, it is the sense of the convention that congress should enact such legislation as will result in the establishment of a national uniform system of quarantine with due regard to the rights of the various States.

It is not the purpose of this convention to endorse any plan, system or legislation now proposed, but simply to place on record its belief in the necessity for uniformity and such enforcement as is only possible under national supervision, leaving the plan and its details to our representatives in congress.

Dr. Horlbeck, of South Carolina, protested against the criticism against State boards, and said that the Board of his State had kept the disease out of that State through several epidemics. He thought they ought to find out all about the disease. There are plenty of laws about quarantine, and all they need is to be enforced.

Mr. E. L. Russell cited the practical experience in the management of the Mobile & Ohio railroad during the recent yellow fever, stating that the receipts for the three months exceeded any similar period in the history of the road; that no case of fever was carried beyond Whistler, showing that, with harmony, the States could manage affairs themselves.

Ex Lieutenant Governor Shand, of Mississippi, defended the State Board of Health of Mississippi.

Dr. Robbins asked if members of the board had not continued to proclaim to the world that the fever at Ocean Springs was dengue.

Dr. Haralson replied and stated what took place at Ocean Springs relative to the disease there.

The chair called the speakers to order time and again, saying this was no debating society for the adjustment of personal questions.

President T. G. Bush, of the Mobile & Birmingham railroad, gave his experience in the running of that road. He said he had to deal with the board of health of Dallas. The first thing they did was to cut off thirty-two miles of his road, declaring that everything that passed over the line into Clarke county was infected and could not come back. Fumigation was no good.

Hon. R. H. Clarke said that if the State of Alabama would appropriate money enough to run the quarantine plant at Fort Morgan he would be satisfied to have the present board conduct that quarantine.

A telegram of greeting from the Tennessee Board of Health and promising co-operation was read.

(To be continued.)

New Jersey State Sanitary Association.

The meeting of this Association was held at Lakewood, Dec. 10, 1897. The President, Mr. James Owen, C.E., of Montclair, called the members to order at 3 P.M.

Dr. Joseph W. Stickler of Orange, Chairman of the Committee on Inspection of Factories, read his report.

He inspected the factories of Orange, Newark and Paterson and, as a result, suggested these points to be borne in mind in such work: Site, drainage, condition of cellars; are rooms occupied day and night; are rooms overcrowded; ventilation; plumbing; condition of cesspools and water-closets; cisterns, size and condition; condition of drinking water; temperature of working rooms; condition of the atmosphere in rooms; clothing worn by operatives; environments; subsoil; wells, their condition; height of ceilings; sanitary defects around the factory; food and drink of operatives; amount of rest allowed employes; personal habits of operatives; the state of the nutrition and general health of the operatives. Dr. Benjamin of Jersey City, and Dr. Braymer of Camden and Dr. Baldwin of Newark inspected the factories of their respective cities and concur with me as to the importance of paying special attention to the above points, and also that many of the buildings are in good sanitary condition, others are in an insanitary state.

A careful consideration of the factory laws, etc., can not fail to convince one of the fact that ample provision has been made for the safety and health of those who work there. If clause x of supplement to an act entitled "A general act relating to factories and work shops, and the employment, safety, health and work hours of operatives, approved April 7, 1885, were the only legal enactment appearing on the pages of the statute book and were faithfully and conscientiously carried into effect in every instance by the inspectors appointed by the State, no factory within the borders would be likely to be justly criticised. It is fair to say that we found many of the factories in the best condition, but some indicated that the inspectors must have failed to carry out their instructions. In either case there is good ground for adverse criticism. Dr. Torrop of England says: "Factory work is not so excessively laborious; it is the heat, impurity, and dust-laden atmosphere that injures health. The promising child of ten degenerates into the lean and sallow person of thirteen and this process is continued until a whole population has been stunted, and thus factory life becomes a source of danger to the future of England. In addition to the loss of physique, it is instructive to note the deterioration of personal appearance. Out of 2000 children under notice, only sixteen could be described as handsome, and of those the larger proportion were girls from Ireland." It seems to me that what is true of England must be equally true of America. For this reason inspectors should be careful to enforce the laws for the protection of factory employes. Inspectors should be men who understand the effects of any given employment upon the health of those engaged in it, and to this end it is essential to understand the conditions and circumstances connected with it, and these are found to be almost as numerous as the occupations themselves (Arlidge). Again, it should be known that hereditary influence as an accidental condition, coupled with the social status of an employment, has a tendency to perpetuate physical defects and disorders engendered by the occupation (Arlidge). "Another fact is that large wages have to be given in various offensive, unhealthy and dangerous trades; and as may be supposed the workmen attracted to them belong chiefly to the reckless class, broken down characters in the lower stratum of society who are willing to lead a short and merry life."

Experience has shown to this grade of laborers that the obnoxious work they carry on, plus the possession of means for self-indulgence, operates as an inducement to intemperance, vicious habits, neglect of home cleanliness, comfort and health. Again, season trades are fluctuating; periods of active operation are followed by stagnation. It is manifest that this must affect, deleteriously, the health of the employed. It should also be understood that an insistence upon sanitation in factories means the protection of the workman; and that means one way of removing the antagonism between capital and labor. Dr. Guy, in making an analysis of the official monthly tables to discover the "influence of employments upon health," made the following statements: "The ratio of cases of pulmonary consumption to other diseases is highest where the amount of exertion is least, and lowest where it is highest; and the intermediate degree of exertion presents an intermediate ratio. The age at which consumption makes its attack is earlier in employments requiring little exertion than in those requiring more, and in those requiring moderate exertion than in those demanding a great effort. The average of deaths is lowest where there is least exertion, but highest where the exertion is intermediate between the extremes. The class of outdoor occupations requiring moderate exertion presents a higher percentage proportion of deaths under 40, and a corresponding loss of young men. Sedentary employments and those requiring little exertion are more unfavorable to adult and middle life, but more favorable to old age; on the other hand employments requiring great exertion are unfavorable to youth and longevity, but favorable to middle age. Employments with little exertion prove fatal by inducing an excess of consumption early in life; those requiring great exertion by occasioning other diseases of the air-passages and lungs, toward the commencement of old age."

Dr. Greenhow sums up: In proportion as the male and female population are severally attracted to indoor branches of industry, in such proportion, other things being equal, their respective death rates by phthisis are increased. Racial peculiarities have much to do with the effect of labor on health. Attention has been called to the fact that an occupation or a manufactory recruited with Celtic Irish workers may be expected to have a higher rate of mortality than would obtain if

Anglo-Saxon workers are employed. These matters should engage the attention of the men whose duty it is to inspect the factories of our State. When we are reminded that in the factories of New Jersey today, 50,848 persons are working, and that the health of this large army actually depends upon the well-directed efforts of our State factory inspectors, and upon wise and comprehensive legislation, I think you all will agree that our time has been well spent. No man who is unfaithful or limited in his knowledge in this line of work has any right to be found therein. Any man who seeks the position of factory inspector simply because it pays a fair annual salary is little less than criminal in spirit; and any owner of a factory who, after being instructed as to what he ought to do to make his particular trade, buildings and premises as healthful as possible, fails to do so, is guilty of culpable negligence. It should be remembered that operatives form an important part, social and political, of the population of this great country. They are important citizens with all the rights which belong to men and women who live under the protection of the grand old ensign of this glorious republic. Let us, therefore, consider their preservation from disease and injury while contributing to the industrial pre-eminence of our Nation, honored in every clime under the sun, because of the security afforded its children, not only their inherited rights because of citizenship, but a endorsed by the law of God, and the generous spirit of a just and common humanity.

Dr. J. R. LEAL of Paterson, said the report virtually admitted that we are compelled to have sanitation by the labor organizations. If the law was enforced the factories would be perfect. If the inspectors did their duty, there would be nothing for this society to do. It would appear that the sanitary condition as a whole was better than that of the homes.

Dr. HENRY MITCHELL, Secretary of the State Board of Health, said the inspector has powers and can demand changes that he may deem proper. The local boards should attend to the execution of the laws.

Dr. JAMES A. EXTON of Arlington read the report on "Improvement of Sanitary Administration in Townships." The object of appointing the committee was to secure legislation. To this end they secured the introduction of a supplement to the Act to establish Boards of Health, asking for sanitary inspection, the appointment of a State Board of Examiners whose certificates should be an assurance of eligibility of the applicant to appointment as sanitary inspector. This was known as the Wildman Bill; it passed both houses of the legislature, but was vetoed by the Governor. All believed this to be a proper bill, and with the changes recommended by the Governor in his veto will be carried through the coming year, and hence the committee asked to be continued in order to push it. This was granted.

Mr. M. O. LEIGHTON of Montclair read a paper on

VICISSITUDES OF HEALTH INSPECTORS.

He said that trouble begins at once after the accession of the inspector to office, and multiplies. He is well abused. In the milk inspection he worked personally; supervised the analysis of the milk, the bacteriologic department and the inspection of the dairies. In cases of contagious disease he studied the source of infection, superintended the disposal of ashes and garbage, as also the plumbing. To these duties he added the examination of nuisances and a number of other matters. Complaints give a ludicrous series of pictures from noisy cows to vicious dogs, troublesome geese, leaky roofs and neighborhood quarrels. He is sure to make enemies unless he is extremely fortunate. A gentleman brings a bottle of water, shall we drink this? One must labor with him, pacify him; make him know that it is not necessarily baneful, even if it is muddy. He departs and talks learnedly of bacteria and albuminoid ammonia for a week. The next knows all about disease germs from the newspapers; boils his water and milk; suspects an epidemic in every dust cloud; diphtheria has broken out in his block, wants to know if it will be better to move away to his summer home till the case is well. Nothing but intelligent reasoning will do with him. He is shown the fact that there is no danger to his family, that the case is well isolated, can not extend, and to move may be a change for the worse. The next has no complaint nor quarrel with her neighbors, but wishes to inform the health board that so and so exists in such a place, but does not wish her name to be mentioned. Now, in nine out of ten such cases there is no cause for complaint. The next desires information as to the general health of the place, what contagious diseases exist. Such a visit is pleasant, and the inspector wants more of such. In the eyes of the citizen the health inspector occupies a peculiar position. The laws have invested him with powers so extensive and so useful that it is well to know him. In order to be of service in the most efficient manner, he is confronted with many ideas as to what is best to do in each case. He must not believe in a weakened policy, nor advocate a two-faced principle. He must reach the same end by paths which conform to the idiosyncrasies of those with whom he has to deal. Tact, honest old-fashioned tact is needed, if the health officer wishes to obtain the best results. An old friend at the outset of the speaker's career said "Remember one catches more flies with molasses than with vinegar." Again, he must fancy the feelings of those who believe their house is their castle and have him come in and tell that man his property is a nuisance. If he becomes offensive to the neighbors, a change must be made. Probably this man has had all this for twenty-five years, and all thrived with it, hence he is not willing to recognize any demand for a change. There is contagious disease in his family, his house is placarded, the family quarantined, and they can not mingle with the rest freely as formerly; all this provokes opposition, and needs the greatest care in its doing. All must be done in accordance with the most approved principles as to modern science, thus to produce the greatest amount of good, and must be carefully fitted to each case. In regard to the milk supply, he visits the dairy, inquires as to the cleaning of the cows, the stables, the hands of the milkers and the other hygienic needs, then as to the cooling of the milk, the cleansing of the bottles and multitudinous points. Think of the difficulties met with. This is nothing beside the problem of teaching the ordinary dairyman a few facts about biology of milk. He listens to the discussion of the bacterial action in souring milk, cooling quickly to stop the growth of the bacteria, cleanliness to prevent bacteria getting into the milk; a few call it bosh, or stare in open mouthed wonder. One accepted all and fixed his place as required; one day he came in and said he should add a cream separator to his dairy, it was a bad plan to set pans of milk in the open air, lest a lot of bacteria should get in and do harm with their dirty feet. After the inspector had recovered he determined not to discuss the bacterial problem with a dairyman. The municipal government has trouble with the health officer. The police station is often offensive, the lavatories are unwashed for a long time; the garbage is not collected properly, even decently. In the report of the State Board of Health, you will find town after town show the same thing. You generally find swine feeding on offensive filth thrown out from a town, the garbage being disposed of just outside the town. These hogs are then brought to market as food for the citizens, and the inspector has to view this prospect and see his progressive people feeding on the unpurified product of their own garbage. It seems that the board of health stands idly by and sees the reeking offal of its municipality going to produce pork for human consumption. Thus it falls far short of the ideal for which it was created, and fails to be worthy of the principles by which it is governed.

Another point full of anxiety is his relations with his brother doctors. What is worse in any department of life than a careless inconsiderate person who is supposed to know the value of certain systems, and yet goes always as far as he dares in the wrong direction? I of course do not intend to include all doctors in this class, yet there are a few in each district. I have seen a doctor attend a patient in the desquamative stage of scarlet fever, and go to the bedside of a little sufferer weak and emaciated from fermental diarrhea. There will come a time when the general public will be sufficiently educated in public sanitation and the whole function of the board of health will be to keep in line those doctors who need to be looked after.

Finally, he mentioned the vicissitudes arising from his relations to women. To his mind this presents the widest variety of situations. It is the hardest kind of a problem, yet withal some of the most pleasant and profitable of that official's experiences. The "peculiar odor woman" sends a note desiring him to call at once. He puts off other and more important matters, hurries to the house when she tells him of a mysterious odor, and every one has the same tone and words. He spends hours in searching out the odor, she follows, rejoicing at every insanitary discovery. Should the sanitary condition happen to be perfect, no source of odor be found, he leaves that house having lost his reputation as an expert. In nearly every case, there is no cause apparent. Happily, few houses approximate the ideal, so he generally finds a few changes to recommend. So, he goes from disease to sewers, from sewers to milk, from milk to nuisances, till at the close of the day he leaves work unfinished and goes hoping he will be a long time dead.

In the discussion that followed, the speakers endorsed and enlarged upon the matters mentioned, and it was advocated that a plan be adopted, of adding a class to the colleges similar to that at the Massachusetts Institute of Technology, from which Mr. Leighton graduated.

In the evening, the president, JAMES OWEN, C.E., delivered the Annual Address. His subject was

THE STATE OF NEW JERSEY AS A HEALTH RESORT.

In reviewing the conditions that make such a claim tenable, certain interesting facts and figures present themselves. To thoroughly appreciate the question, the axioms of the relation of man to his environments must be accepted and, in the effect of climate on humanity, it must be conceded that in certain regions of the earth's surface, human life is an impossibility save for limited period and confined to the individual; that in more favorable regions certain selected specimens can be developed but with little power of increase; that in still more favorable localities a large population can live, reproduce themselves, but of an adapted type; that with favorable environments men will increase faster than the capacity of such environment to furnish a living, the resultant is the tendency to migrate which is only restricted by physical obstacles or repressive customs; that the migration of the individual from the region to which he and his kind are especially adapted, as a rule acts detrimentally on his physique unless the climatic conditions of the new location are almost exactly similar to the original. This deterioration of the physique may not be developed in the individual but will in his progeny, till acclimatization perfectly ensues; that there is an inherent tendency in the physical organization of man to adapt itself to new conditions. It is a slow process, and may take three or four generations to arrive at a perfect organism. It must also be remembered that the so called salubrious climate does not develop the highest type of physical manhood; such type is generally achieved under harsh conditions. All these assertions are based upon the inherent physical tendencies and growth which are universal on every part of the earth's surface. In addition to that is the effect of mental effort on environments, and here a line of demarcation is found to physical development on climatic lines, which is hazy and indistinct, but that certain races make no attempt to improve their physical surroundings, and that other races are continuously bettering them by intellectual effort and actual manual work, is patent to all. The North American Indian from prehistoric time made no effort to change the physical condition of this country; yet within a century, the mental and corporal activity of the white race has practically changed the face of this whole continent and an appreciable portion of this activity has been on lines of what may be called sanitary improvement, showing that the effect of the intellect is to adapt the surroundings to man instead of man to his surroundings. This alternative gives the immense scope for sanitary work in all its ramifications; but one prominent factor must always be considered, and it is that the basis of all sanitary effort on the individual and his environments is the natural climate of the district in which he lives, and the climatic conditions must be distinguished as general or specific.

The general character of a climate in any locality is a natural condition that no particular effort of man can modify. Specific conditions can be changed by human effort, according to his mental acumen and physical energy. Adapting the foregoing principles to our State what do we find? 1. The aboriginal with a physical development adapted to the surroundings, with small power of increase and an utter inability to improve his conditions. This continued till within about 250 years, when the migration began and this has been kept up continuously. During that period, it has been proved that the general climatic condition of the State is positively favorable to both in the development of physique and in power of increase. As the earlier settlements were made on selected territory, the necessity for modifying specific climatic conditions was not apparent, but as population increased, the insalubrious localities were improved and changed till today a very small portion of the State can be considered uninhabitable from natural causes. The growth of the population of the State may be divided into three periods: That from the early settlement to the construction of steam railroads; this growth was mainly agricultural and with a very small urban population. From 1840 the growth of railroads stimulated the business activity of the State and then began the large increase of urban population till about 1865 the suburban or residential accretion began, and which now forms such an important section of the Commonwealth. It must be noted that the governing impulse of all migration up to 1865 was that of gaining a livelihood in the locality and in the State; since then, the motive has been largely for residential purposes and the paramount influence for a migration is the sanitary character of the locality. In 1737 the population was 47,369; 1840, 373,206; 1865, 773,700; 1895, 1,673,106. An analysis of this growth must be considered in the broad distinction as urban, suburban, rural, and, taking from the whole State the counties of Hudson, Bergen, Essex, Passaic, Mercer, Camden and Union, as those that are urban or suburban, the rest as rural, the division of the population on those lines would show: 1737, urban, 11,164; rural, 36,205; percentage of urban to rural, 23.4; 1840, urban, 125,-563; rural, 247,743; per cent., 33.6; 1865, urban, 387,104; rural, 386,596; per cent., 50; 1895, urban, 1,109,768; rural, 563,438; per cent., 66. In the year 1737 the proportion is vague; on the other hand, in 1895, there are counties like Morris, Middlesex and Monmouth that have acquired a large urban and suburban population, so probably the percentage would be nearer the truth as 70, than 66 as above. Assuming this, it is desirable to ascertain what proportion of the population is, in using this State for residential purposes alone, with no business ties, governed solely in their selection of a home by convenience and sanitary surrounding and are generally known as the commuters. In this class we must collate all dependent upon the commuter and his family, located merely to supply his wants, and who leaves if he leaves. It is safe to say that every man who comes to New Jersey to settle in a suburban home with his family, has another who has come to supply his wants. There are many towns and villages in the northeastern part of the State, and also in the southwestern part, that have no other cause of existence than the suburban resident, and on the sanitary condition of these towns, cities, etc., depends their vitality and existence. In addition, there is the temporary accretion during the summer months, and this is due entirely to sanitary and climatic conditions, namely, those who crowd the seaside resorts and who are also scattered over the rural and mountainous section of the State. To determine accurately the proportion of the population that is purely residential in proportion to the whole number is a matter of difficulty, as intermingled with it in some places are industrial pursuits that make it difficult to segregate one from the other, and many of the cities, as Newark, Jersey City, Hoboken, Paterson, Camden, have a large number who do business in other places, but prefer this State as a residence, and their number is greater than is usually expected. Information gathered from the railroads as to the commuters is only partial. The Erie R. R. has 20,000 a day; the D. L. & W., 15,000. Passengers crossing the North River in 1886 were 58,894,000; in 1890, 72,250,000; in 1900 it is estimated at 100,000,000, of which 50,000,000 will be from Hoboken, Jersey City and Newark, 38,000,000 from other towns, and 12,000,000 from a distance of thirty miles. Assuming at present 90,000,000 a year, deduct for Sundays, etc., would give a daily average of 128,000 to and from. Allow half as regular commuters and we have 65,000. Taking the basis of commuters on the D. L. & W. to population, the proportion of immediate dependent inhabitants to commuters as 6 to 1, we have a population in northern New Jersey of 400,000 as purely resident; in addition, 50,000 more can be counted in the southern part adjacent to Philadelphia. Assuming, as approximately correct, 250,000 the visiting population in the summer, we have 700,000 people who have no stronger tie than sanitary condition and therefore the greater *onus* on the varying State and local authorities to preserve the good reputation for climatic and topographic excellencies. Curiously enough, the State has been a byword in the country at large for bad climate and unsatisfactory conditions. Malaria and mosquitoes have been synonymous with New Jersey, and to have lived such a reputation down, and to be the State *par excellence* for location on pure sanitary lines, show that mental effort has been joined with natural conditions to achieve such a result, and that brings us to the culminating axiom of sanitary laws, that the tendency of congestive humanity is to destroy itself, unless intelligence and energy are combined to offset such disasters. This combination of intelligence with energy is classified as sanitation. In no State in the Union is this more strictly demanded than with us, and to have proper sanitation, intelligent supervision is demanded and a conscientious obedience to such a supervision by the committee at large is absolutely essential. No more intelligent understanding of the sanitary condition of any locality can be arrived at than by studying the death rate, and I have worked out the rate for the different towns, etc., for the last five years. A synopsis will probably be interesting. A criticism may be raised that five years is too short for a proper conception of death rate, but two facts may be submitted: In the last five years the returns have been more accurate, and the death rate is decreasing so rapidly, that averages for ten years would give a wrong impression.

He gave the rate for nine agricultural counties as 14.6 per thousand of population; of eight surburban counties as 17.8; of seven urban counties as 20.1; of four seaside counties as 16.3; the death rate in the seaside counties conveys a false impression, as all the deaths are given, including non-residents, while the ratio is on the actual population. Sussex, in the mountains, has the lowest, as might be expected. Salem next, is on the borders of the river with no high land but a loamy sandy soil. Hudson is the highest, due to a congested population and lack of sanitation. Curiously, the rate of the suburban sections is not much greater than the rural rate. Ten years ago it was much higher. The improved rate is due to better conditions. The suburban sections with cities eliminated show the effect of specific conditions and how important to neutralize congestion by care and watchfulness. Essex county is 21.2; without the city of Newark, it is 15. In basing an estimate of the sanitary condition it is proper to assume an ideal rate and criticize any departure, so we find three towns in Hunterdon County with a rate of 10; so with several other counties. Yet it would not be safe to assume 10 as the ideal, for in most counties with low rates the population is decreasing and children are few. Hence complete sanitation and proper climatic conditions will concede a rate of 13, and that is about the average of the purely rural section where there is no congestion, pure air and water are available with little care and with the practice of the ordinary ideas of cleanliness.

In the urban and suburban sections different conditions prevail, and here sanitation comes into play. Proper drainage, pure water, complete sewerage, removal of garbage and of ground water are essentials of a low rate, and in Essex County we find East Orange with a population 18,000, death rate of 12; Montclair 14; Bloomfield 13.6; West Orange and South Orange, pure water, no sewerage 13.5 and 12.9. This rate of 13 can be achieved and should be the desideratum, and all in authority in the State should examine their locality and find the cause, if more than that. The science of sanitation is now crystallized into a practical profession. In all works of this character there are two factors, the individual and the community; thus if a town puts in a system of sewerage and the individual adjusts his property to it they are in accord. These factors have both to be educated but in different lines. Sometimes the individual is willing and the community not; and *vice versa*. We need here education and legislation, and I think the State has done its duty in that line. The State Board of Health, under its former secretary, Dr. Ezra M. Hunt, and its present efficient one, Dr. Henry Mitchell, laid down lines of procedure in sanitation for this State, first to educate the people to the necessities for more care for their health, and then to pass laws to enable them to take that care. Probably with the exception of the State of Massachusetts our State has the most complete sanitary legislation extant, and its full adoption would bring the death rate well toward the ideal of 13, and only the neglect of individuals and communities allow it to stand at 20 and 23 as it does some places. Provision is made for health boards of all kinds. Every municipality has power to get good water and sewerage, collect garbage, regulate plumbing and insure unadulterated food. Forty-eight towns and cities have systems of sewerage accommodating a population of over 1,200,000; probably the dwellings of 750,000 are sewered, fifty have waterworks supplying good water. In many places drainage systems are perfect, and in all the large cities supervision is exercised over the house construction and plumbing. The effect of this Association is not confined to this room, hence my detailing these matters at the risk of being tedious. Twenty-five years ago I had the privilege of being associated with Dr. Sandford B. Hunt, the father of the Commissioner of Passaic Valley Sewerage, who is with us tonight, in sending out notices for the first meeting of this Association held in Newark. The meeting was large and enthusiastic and thence originated all the sanitary work of the State. Then the State Board was organized and both organizations have forwarded the great work; coupled with this is the great progress in medical science, and as an engineer I am not able to outline the details of this growth; yet I will allude to the desideratum in sanitation, that the doctor and the engineer should travel in the path of progress hand in hand, one to exercise his power to prevent disease the other to eliminate it.

DISPOSAL OF GARBAGE.

Mr. Rudolph Herring, C. E., of New York, then spoke upon the "Disposal of Garbage." In Europe cremation is generally the plan by which to get rid of the garbage. In this country we have a variety of ways. Garbage is kitchen slop, ashes, dust of the streets, in fact all refuse save that in the cesspools. In some places cremation gives good results. Some report this plan as more valuable and less expensive. Some separate the slops from the rest and feed it to animals. The special objection is that it is apt to ferment and become most offensive and also prove injurious to the animals. Economy is demanded in the disposal of the garbage. Cremation is objected to because it generally proves a nuisance by the odor given forth in the process. Hamburg uses cremation and finds it very satisfactory. They show that it need not be conducted so as to be a nuisance. The products are regarded as an excellent fertilizer. At present the question is as to the cost before any plan is adopted. Usually the cheapest plan is adopted. Boston is now about to adopt cremation. In case of an epidemic cremation is the safest plan. Brooklyn and New York now use the reduction plan. This disposes of the refuse of the house only, while cremation must follow for the rest. Too often these matters are decided by political influence, not according to what is proper or best. In conclusion he said cremation is always the best for sanitary purposes and from an economic point of view.

Mr. M. N. Baker, C. E., of the Upper Montclair, agreed most heartily with all the speaker had said, unless it might be that one or two points of minor importance were open to discussion. In his own household he had found no difficulty in disposing of all the garbage by burning it in the kitchen range. This he considered preferable to having an odorous receptacle standing about. The plan is not practical, however, unless given personal attention by some one other than the ordinary servant. It never will become the universal method of disposing of garbage. Plants for the disposal of garbage have proved failures, which is largely due to the fact that the garbage-disposal problem is not approached by most citizens in a scientific manner. If a sewage or water purification plant is to be built, an engineer of good standing is called in to aid in the undertaking. But when a city finds it necessary to make some change in its method of garbage disposal, instead of employing an engineer to outline a plan best suited to the needs of a city, a committee of the city council sets forth on a visiting trip to garbage plants and is very likely to come back most impressed with that system of disposal the commercial agent of which talked the smoothest or made the best impression by whatever means. The questions involved in garbage disposal are scientific ones and should be studied in a scientific manner. If cremation is to be employed it is a question of how many heat units will be required and how they can be generated and applied to the best advantage. If a reduction process is to be installed, machinery will be needed to secure the grease and fertilizing material. In either process the questions arising are best answered by the engineer rather than the layman; in fact the layman can not answer them. One reason for the high prices for garbage disposal prevailing in most cities where the work is done by private parties is the short term of the contract. Contractors are forced to provide expensive plants and are then limited to one year contracts. They know the job may go to some one else at the end of the period, and hence must bid enough to cover the risk. The lesson from this is either to make the contract longer or have the work done by the municipality. In the collection of garbage he said, experience shows that but a small proportion of the population is served when the work is entrusted to private scavengers instead of having a general public service, either by the city or by contractors paid by the city.

(*To be continued.*)

SELECTIONS.

Perforation of a Gastric Ulcer into the Pericardium.—Mr. Collingwood Fenwick has reported in the London *Lancet* for August 14 a case of the above rare accident, as follows: On July 30 I was summoned to attend a man who had been taken suddenly ill. Arriving at his house three minutes after receiving the summons, I found him lying dead on a garden chair. The history I obtained from the widow was as follows: Her husband's age was 55 years, and until recent years he had been a builder. On the day of his decease he returned home from a walk, but made no complaint and appeared to be in his usual health. He had never complained of pain after food, or suffered from vomiting or any other symptom of gastric disease. Immediately on finishing his meal, which consisted of tea, fish, and bread and butter, he rose from the table complaining of pain and palpitation. After walking a few yards he sat down, and his wife, noticing that he looked very pale, administered some whisky and water, but he expired in about a minute.

Necropsy.—The results of the postmortem examination, made twelve hours after death, were as follows: The body was that of a stout elderly man. The lungs were emphysematous, the right lung being bound to the chest wall by strong pleuritic adhesions. The pericardium was found to contain several ounces of tea, which smelled of whisky, and some particles of fish. On the lower surface of the pericardium a small aperture was discovered, admitting a stout probe, which was passed downward through the diaphragm into the abdominal cavity. The heart itself weighed thirteen ounces and was extensively infiltrated with fat; the valves were normal. The anterior surface of the stomach was found to be firmly adherent to the under surface of the diaphragm, and on opening the viscus a chronic ulcer the size of a shilling, with indurated edges, was seen to be situated about the center of the lesser curvature. From the base of the ulcer a sinuous track led upward, and to the right, through the substance of the pericardium. The stomach contained fourteen ounces of undigested material, composed of tea, fish and sodden bread. All the other organs were apparently healthy.

In a later issue of the *Lancet*, an editorial writer offers the following instructive comments upon the case. The probability of a gastric ulcer perforating the wall of the stomach depends chiefly on its situation. An ulcer on the anterior surface of the stomach will almost certainly lead to perforation if the ulcerative process continues; but should the ulcer be situated on the posterior wall adhesions form very readily, so that the stomach becomes adherent to the diaphragm or to the left lobe of the liver, but the diaphragm itself may become perforated by an extension of the ulceration, and then the ulcer may open in the left pleural cavity or into the pericardium. Perforation of the diaphragm by gastric ulcer is decidedly a rare occurrence, and even when it does occur the pleura is much more frequently affected than the pericardium. Of twenty-eight cases of perforation of the diaphragm by gastric ulcers, collected by Ludwig Pick, only ten were cases in which the ulceration had perforated the pericardium. In an earlier issue is recorded a very interesting case which occurred in the practice of Mr. Fenwick, in which a gastric ulcer had perforated the pericardium with an immediately fatal result, and yet no previous symptoms had occurred to point to the presence of the gastric ulcer. In four of the ten cases collected by Pick the two surfaces of the pericardium had become adherent before the ulceration had perforated, so that the ulcerative process involved the substance of the heart itself.

The Period at Which Old Age Begins.—Dr. Leake, in the *Medical Examiner*, argues that age sets in indefinitely when the forces of life begin to flag. Some men are twenty years younger physically and mentally than other men of the same age. It is self-evident then, that old age does not begin at any set time, so far as the divisions of time divide the periods of life, but that it has to do with that subtle agent known as the vital force, an acquaintance with which enables the analytical mind to become proficient in prognosis by weighing in the balance the vitality on the one side with the pathology on the other. Insurance companies say that a man over 60 years of age is not incurable. The truth is, many men under that age are insured and prove less profitable risks than many men would be over that age for reasons stated above. A more equable and profitable rule could be adopted if the companies could receive conscientious and competent work from the medical examiners, which an extensive observation prompts us to say is not done as a rule.

The indications of old age may be noticed by ocular inspection. The weight of years is manifested by the stoop figure, the walk is less elastic, the rounded figure gives place to the spare habit of body, the wrinkle of time mounts the cheek, while the frost of many winters mantles the brow. The typical healthy person who attains to old age is spare of body, and old age emphasizes this fact by causing a paucity of adipose tissue. So the wrinkle of time after all is kindly in its nature. Physiologically we notice that a diminution of the physical energy is accompanied by a corresponding diminution of the power to eliminate waste material from the body. Elasticity and strength give place to hardness and brittleness of nearly all of the tissues of the body. The general health may be good, because there is a harmonious balance between the action of the nervous system and the circulatory system. However, the former is less responsive to external stimulation, and the latter is less vigorous in old age. The vital processes conducted by the circulation, respiration and metabolic changes in the tissues are less active. There is diminished adaptability of the whole system to changes in the environment, and less ability to meet the requirements of emergencies, such as sudden demands of muscular and mental strain.

The senile conditions and diseases that render old age uninsurable are numerous and obvious. In the first place, weakened digestion and assimilation; the weakened vigor of the circulation and glandular system necessarily weakens the power of eliminating the excrementitious substances, which gives rise to pernicious nutrition, and that in turn is the cause of the tendency to develop malignant or benign growths in different parts of the body in old age. The strong tendency to over-eat and under-drink, together with the natural decline of functional power, gives rise to a condition of lithemia, which is the prime cause of the majority of deaths in old age. In the healthy state that great glandular furnace and chemical laboratory, the liver, is capable of transforming an excess of nitrogenous matter, which may result from metabolism of tissue or exist in the food consumed, into the highly soluble excrementitious substance known as urea. This excrement is eliminated from the blood mainly by the kidneys and to a much less extent by the skin. Now in old age, with the functional power and natural vitality on the wane, together with the strong tendency to overtax this function of the liver, we find this waste is not converted into urea, but into uric or lithic acid, a comparatively insoluble excrementitious and toxic substance, which if it appear in the blood in sufficient quantity, and is long enough continued in circulation through the urinary tubules, sets up irritation and inflammation, which inevitably impairs the function of the renal epithelium, and we find this poisonous substance is not eliminated from the system, but accumulates in the blood. This explains why old people are almost universally troubled with disease of the liver, kidneys, bladder and prostate gland. The unstable circulation, atheromatous changes and brittleness of the walls of the blood vessels, with the tendency to over-tax the digestive apparatus, is the cause of many old people going to "that bourne from which no traveler returns," by the apoplectic route. Hereditary diseases naturally manifest themselves when the vitality is upon a low plane, when the general health is below a certain level; so we are not surprised to find certain dyscrasic and latent tendencies manifesting themselves at this period of life, when the natural vitality is waning. The diseases most frequently found to be the cause of dissolution among the aged are pneumonia, diseases of the liver and urinary organs, consumption, cancer, apoplexy, gangrene.

Old age is not insurable, because the expectancy of continued life is too uncertain. The question of time obviously enters largely into the fact that makes a risk profitable or unprofitable to the company writing the contract. Experience has taught that mankind over 60 years of age are not profitable risks, because the life tenure is too short. The agencies of dress reform, physical culture and self-knowledge, which are beginning to unfold themselves by an educational process at the present time, will tend to increase the longevity of the human race. The writer expects that two generations hence the time limit can safely be extended to seventy years. The enemy to longevity is self-indulgence. People who have reached an advanced age may prolong their lives and greatly add to the comfort of their declining years by diminishing the quantity of food ingested; by taking food more frequently and in smaller amounts; by taking only easily digested food; thereby avoiding too large a residue of waste matter, either in the intestinal canal, or in the form of excrementitious matter in the blood.

PRACTICAL NOTES.

Sodium Salicylate and Caffein in Uterine Atony.—Katzenellenbogen states that he has found this combination effective in securing energetic contractions of the uterus intra partum. Twenty to thirty centigrams were injected subcutaneously.—*Semaine Méd.*, December 29.

Electric Apparatus for Migraine.—At the meeting of the Berlin Medical Association, December 8, L. Ewer exhibited an apparatus consisting of an accumulator and dynamo with a rubber knob attached, which imparts slight impulses as it rotates, which, he states, cure in a few minutes all cases of migraine, except the angioparalytic form.—*Deu. M. Woch.*, December 23.

Bremer's Macroscopic Test of Diabetic Blood.—Object glasses are smeared with normal and the suspected blood and placed ten minutes in the oven at a temperature of 135 degrees C. A 1 per cent. aqueous solution of Congo red or methylene blue, stains the normal blood the corresponding tint, while the diabetic blood is only slightly or not at all affected by it. The stain should be applied from one and one-half to two minutes; if left longer the difference becomes less marked.—*Deu. Med. Woch.*, January 6.

Serum Treatment of Ozena.—At the Italian Congress of Oto-rhino-laryngology held at Rome in October, Della Vedova and Belfanti proclaimed the efficacy of serotherapy in ozena, which they have established by much experimental work. Masini also conceded its value, but considers cataphoresis with slow electrolysis the chief reliance. Others recognized the benefits to be derived from serotherapy in certain cases. . . . *Wratsch* No. 40, reports another case of the complete recovery of a child of 5 years after a single injection of 10 cm. of Roux's antidiphtheria serum.

Therapeutics of Whooping Cough.—According to Busdraghi's experience a treatment that disinfects, soothes the nervous system and keeps up the strength is much better than any of the so called specifics. For the first he advises spraying for ten minutes a day with a 2 per cent. solution of carbolic. For the second he prefers trional, which ensures a calm, lasting and strengthening sleep, 0.1 to 0.5 gram according to age. He adds a teaspoon of a 1 per cent. solution of chloral in very obstinate cases. To keep up the strength he gives one-fourth to one-half teaspoon somatose in milk three or four times a day.—*Klin. Therap. Woch.*, January 9.

Atropin in Delirium Tremens.—The remedies employed in delirium tremens are only relatively effective, but cold baths affect the syndrome favorably. Reasoning from the assumption that they stimulate the inhibited cerebral centers. Tuwim of St. Petersburg, has been trying atropin, which also stimulates the centers, and announces that it is extremely successful. In ten out of eleven cases a single injection of one milligram of atropin threw the patient into a calm and deep sleep in fifteen to twenty minutes. In the one case in which delirium persisted it was complicated with erysipelas, and yielded finally to a cold bath. He recommends, therefore, subcutaneous injections of atropin, supplemented if necessary by cold baths in the treatment of delirium tremens.—*Semaine Méd.*, December 29.

Ambulant Treatment of Fractures of the Limbs.—Lambret of Lille recently osteotomized the femur of a patient for a genu valgum. The next day the patient walked with crutches, the day after with a cane, and "after that with his hands in his pockets." The apparatus used has a plaster cast around the pelvis in which is mounted a sheet metal crescent, which rests on the ischium. A piece of sheet metal also encircles the knee, below which is the stirrup. The entire apparatus weighs four kilos. The patient walks with the pelvis, the knee rectilinear. He urges the more general adoption of the ambulant treatment.—*Nord. Méd.*, January 1.

Length of Time a Lying in Patient Should Remain in Bed.—An extensive series of tests at the Breslau Clinic, is reported by Brutzer in the *Ztf. f. Geb. u. Gyn.* (Vol. 37, No. 3), which establishes the fact that in certain cases discriminated by the physician, the patient can leave her bed on the second or third day, and that it is injurious rather than beneficial for normal women to stay in bed more than five days at most. Danger of lacerations is much more imminent from defecation or urination than simple moving around. Embolisms do not occur after the second day in normal women if we accept the published statistics. The patients who had quitted their bed early were much stronger when finally dismissed at the tenth day, than those who had kept the reclining position longer.—*D. M. Woch.* January 6.

The Value of Euquinin as a Tasteless Substitute for Quinin mentioned in the Journal (January 1, page 38), is confirmed by the experience of the Milan hospitals where it has been tested on a large scale. Pangrossi also reports fourteen cases treated with it. The conclusions are as announced, that euquinin possesses the same specific and general properties as quinin, in the same intensity, and should be administered in the same doses. The disturbances caused by quinin intoxication do not accompany the use of euquinin, and it has also been found a stimulant to the appetite. A bitter taste develops if held a long while in the mouth, which justifies the assumption that in the stomach it has the tonic property of a bitter substance.—*Gazz. degli Osp. e delle Clin.*, No. 136, 1897.

Treatment of Chronic Cervical Gonorrhea.—F. Lehmann reports several tedious chronic cases cured in three weeks. After cleansing the parts with a soda solution, he introduced into the cervix a conic metal dilator fitted into a small metal tube speculum, the whole introduced through a vaginal speculum. The dilator is withdrawn in the course of five to ten minutes, and through the small tube speculum a tampon dipped in the desired caustic is applied to the entire surface of the cervical mucosa, as it is exposed by the gradual withdrawal of the small speculum. He prefers 5 per cent. argentum nitricum, but chlorid of zinc or argonin can be used. The best results were attained with nulliparæ. Where there is much infiltration, the massage by the dilator is an important factor.—*Deutsche Med. Woch.*, January 6.

Sulpho ricinate of Phenol in Tuberculous Laryngitis and Rhinitis.—Ruault's solution of pure phenic acid in acid sulfo-ricinum has been recently used by Magenau in forty-five cases of tuberculous laryngitis with such benefit that he recommends it to others. In nearly every case the sputa became more fluid, expectoration easier, the voice clearer, swallowing less painful. None were cured completely, but in twenty seven cases followed to date, twelve were remarkably improved; nine slightly and six not at all. It was applied locally in a 20 to 30 per cent. solution two or three times a week, preceded by cocain in some cases. Two cases of tuberculous rhinitis were also much improved, and nearly all cases of "dry" and simple and pachydermic laryngitis.—*Münch. Med. Woch.*, 1897, No. 37.

Value of Electricity in Sciatica.—In a communication to the *Deutsche Med. Woch.* of January 6, Stanowski protests against Möbius's recent assertion that ischias is not benefited by electrotherapy, and describes several extremely severe cases of long standing cured completely by it. He states that he has secured the best results with: 1. The application of the galvanic current, avoiding much variation in the strength of the current; 2, the application of an electrode large enough to cover the entire region from the sacrum to the great trochanter on the affected side (30x20 cm.); 3, applying the other electrode to the sole of the foot, to which it must correspond in size; 4, the current passing down the leg, the positive pole on the sacral region and the negative pole on the foot; 5, half hour treatments at least, and better still, three quarters to an hour each time; 6, the current so graduated that the patient feels no unpleasant sensation from it, especially no tendency to cramps in the leg. He commences with 30 milliamperes in the first sittings, afterward 8 to 10. The electrodes must fit close to the surface, which is protected by a sponge on the sole and four folded towels on the sacral region. The plates are held in place with a leather band. In three and one-half months he transforms helpless, pain-racked invalids into vigorous bicycle riders: his success has been constant.

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SATURDAY, FEBRUARY 19, 1898.

THE MOBILE CONVENTION.

The most important sanitary Convention of recent years was held in Mobile on the 9th, 10th and 11th of February. The Convention was composed principally of representatives from the Gulf and South-Atlantic States, a few invited members being present. The Committee on Resolutions were divided ten to two, ten favoring the Spooner Bill as it stands, and two favoring the modified Caffery Bill. These two were from Georgia.

On these reports reaching the Convention they were debated at length; the Hon. W. H. CLARKE of Mobile made a substitute resolution, and the following action was taken (we quote from the minutes of the meeting):

> Mr. CLARKE asked leave to withdraw his substitute and offer another in its place. Granted.
>
> Col. KAY, of the minority report, withdrew the report.
>
> Dr. HORLBECK withdrew the majority report and moved that CLARKE'S substitute be adopted. Carried unanimously and amid great applause. The substitute reads as follows:
>
> *Resolved*, That it is the sense of this Convention:
>
> 1. That Congress be requested to provide for a department of public health as soon as practicable.
>
> 2. That it is the sense of this Convention that Congress should enact laws to provide for an efficient maritime quarantine to be uniform and impartial in its application to the different commercial ports of this country, so as to give to no one or more of them undue commercial advantage over the others, and to be enforced by the several State and municipal quarantine or health boards, if they will undertake so to do, leaving also to the States the power to prescribe and enforce additional reasonable safeguards of the health of their communities, provided that such State action shall not unreasonably obstruct commerce.
>
> 3. That Congress should aid the several States in establishing and maintaining uniform, reasonable and efficient quarantine laws for affecting but not regulating interstate commerce, leaving to each State adequate power to protect as it shall deem best the lives and health of its people.
>
> 4. That Congress should leave exclusively to the States the regulation of their purely internal commerce and the providing of such quarantine and sanitary law regulations as they may deem advisable to that end.
>
> 5. That in the framing of quarantine laws and regulations, and in their enforcement, Congress should avail itself of the learning, experience and ability of the medical profession in the fullest measure possible, and especially by way of an advisory council.

It will be seen that the essential features of the bill recommended by the Committee of the AMERICAN MEDICAL ASSOCIATION and the American Public Health Association are thus endorsed by a great convention vitally interested in this question, recommending first the establishment of a department of public health, and that quarantine regulations be adopted with the aid and advice of a sanitary council. The pretentions of one man representing a single bureau were thus overturned. We shall give this week and next a full text of the proceedings of this convention.

It now remains for each member of the ASSOCIATION to immediately write his member of Congress and Senators, urging the passage of the bill on the lines of the Spooner Bill, establishing a commission of public health, with an advisory council.

The Convention was orderly and harmonious throughout, and while the discussions were earnest and carried on by men who felt deeply the responsibilities devolving upon them and upon the convention, were never characterized by anything but courtesy and kindly feeling.

The opinions of eminent lawyers of the South in regard to constitutional questions, seem to be conclusive with regard to the enforcement of municipal health regulations by acts of Congress, that those favoring such action by Congress will have to suggest a constitutional amendment to be passed upon by the several States in their legislatures, before such action can be taken, and even then it is doubtful if there is any widespread demand for it at this time.

The State of Mississippi last week made an appropriation of $50,000 to be placed at the disposal of its State Board of Health (which had been previously almost without funds, and hence was crippled during the last epidemic). The legislature also provided that the regulations of the State Board should be supreme throughout the municipalities in the State, and that whenever attempted to be overrun, the governor was authorized to call out the militia to sustain the board. This is a long step in advance and will probably solve the problem so far as interstate commerce and interference with common carriers is concerned. It will also have a very healthy effect in preventing a panic, which is more disastrous in most cases to commercial interests than the epidemic itself. It will be recalled that at this time the National Government is engaged in running a quarantine camp, and vaccinating citizens of Alabama at an estimated expense of three or four hundred dollars a day.

It is understood that the House Committee on

Interstate Commerce (of which Mr. HEPBURN of Iowa is chairman) have resolved to have hearings this week. By the time this reaches our readers the hearings will have been concluded. It is to be hoped that the members will see the importance, if they wish a department or a commission of public health, of moving in this matter instantly and without delay.

Let us have a commission of public health with an advisory council!

THE CAUSE OF DEATH FROM ELECTRIC SHOCK.

The constantly widening employment of electricity, the common use of powerful currents under conditions and in places where some slight derangement may give rise to serious accidents, and the too frequent occurrence of these, make the subject of their cause and manner of occurrence one of unusual interest. It is not necessary to speak of the dangers from fire, which are perhaps really the most serious ones we have to guard against, as the ones most likely to be encountered; the less frequent, but still sufficiently common, perils to human life directly from the current fall more properly into the scope of medical investigation. It is an important question just how death occurs from a powerful electric shock, whether it is instantaneous or not and just what organs and centers are particularly involved. By knowing this we can best estimate the value of any therapeutic resources in these cases and act intelligently in the presence of these accidents.

It has been the opinion of some physiologists that the postmortem findings have indicated that death occurred in these cases from arrest of the respiration, while others have conjectured that cardiac arrest was rather the cause. To settle this question as far as possible, two English physiologists, Drs. THOMAS OLIVER and ROBERT A. BOLAM, undertook a series of experimental investigations, the results of which they have published in the *British Medical Journal* of January 15. These experiments utilized dogs and rabbits, which were subjected, under ether, to high potential currents, the blood pressure and the respiration being instrumentally recorded the while. The alternating current, usually considered the most deadly, was alone employed.

The results of these experiments seem to support the view that death from electric currents of high potential is chiefly, if not solely, due to cardiac arrest. The experimenters found that when a sufficient current was used, the dogs or rabbits succumbed instantaneously with stoppage of the heart; if one of somewhat less potential is employed there may be suspended respiration with the pulse first quickened and then arrested. Usually the heart was first arrested, while rhythmic respiration continued for some appreciable time. Only with very high currents were both arrested together simultaneously. In no case did they observe primary permanent arrest of respiration with continuance of the heart's action. The indications of the recording instruments were supported by those from direct auscultation. After death the left ventricle was found in some of the animals nearly empty, while the right ventricle and large veins were distended with dark fluid blood.

So far as these experiments go the evidence of death by cardiac arrest was conclusive. They did not, however, give any absolute data as to the relation between the strength of the current and the fatal effect; the voltage was not necessarily in proportion to the size of the animal. It appeared possible that younger and less highly organized animals required stronger currents for the fully lethal effect than older and more highly organized ones, but this is stated merely as a suggestion. It is a practically well known fact that it takes more voltage apparently to kill a man than it does some larger animals, which is in part, if not altogether, in accordance with the above statement. It would be a very fortunate thing if we could obtain sufficient data as to every fatal or non-fatal accident from electricity as it occurs from competent observers on the spot, but the conditions are seldom such as to permit this, therefore generalizations as to the exact behavior of the human organism under all the varying circumstances are hardly possible. Much, however, might be learned by careful investigation of each case, and OLIVER and BOLAM quote the testimony of workmen who have observed victims of electric shock make a few respirations after its reception. The currents and methods used in the legal electrocutions in New York are not such as to be altogether comparable to most of the accidents that occur, and of course they do not allow the graphic records of blood pressure and respiration that can be secured in physiologic experimentation. The investigations of the English authors have therefore a special value, as bearing upon the sometimes questioned efficiency of that method of capital punishment. There can be little doubt but that death must be instantaneous in the electric chair, and the continued application of the current would certainly insure it were there any question of the possibility of resuscitation.

As regards the methods to be used for restoration of the victims of electric shock, OLIVER and BOLAM think artificial respiration is after all the most hopeful one, notwithstanding the fact that cardiac arrest is to be considered the chief feature in causing death. It would appear that restoration of the respiration was the best cardiac tonic; many others were tried as well as direct cardiac stimulation and relief of the loaded cavities, but generally if not universally without effect. By artificial respiration they succeeded twice in reviving animals, once after twenty minutes efforts, but they consider this, or at least half an hour, as about the limit of time in which there can be any hope from its employment.

As regards the question of the relative deadliness of the continuous and the alternating currents, there is evidently in their minds some room for difference of opinion, and they propose to give the results of their investigations on this point in a future communication. D'Arsonval, as is well known, has maintained that the continuous current is the more dangerous owing to its greater chemical action, and it may be that there is reason in this opinion. His other claim, that death from simple electric shock is more apparent than genuine, would seem to be overthrown by the experiments of the British investigators. If it is only very exceptionally that resuscitation can be effected in the dog, there is no reason why with stronger currents the same is not true with the human species. The conditions of experiments by skilled physiologists are much more satisfactory than those of the occasional accidents and the conclusions derived from them much more convincing. In the reported cases where a current of several thousand volts has been passed through the human organism without causing death, there are too many unnoted possibilities to make the conditions comparable to those of careful physiologic experimentation by skilled observers. We do not know the minimum limit of voltage required to kill a man under all circumstances, but there can be little question, none the less, of the dangers of high potential electric currents.

DISEASES ASSOCIATED WITH PERSISTENCE AND ENLARGEMENT OF THE THYMUS GLAND AND GENERAL LYMPHATIC HYPERPLASIA.

In the recent Bulletin of the Ohio Hospital for Epileptics, at Gallipolis, Ohio, Dr. A. P. Ohlmacher, the Director of the Pathological Laboratory, describes postmortem examinations in certain cases of epilepsy. In three of the five cases examined there was found a persistent, enlarged thymus, and in four of the cases there was a more or less general lymphadenoid hyperplasia. On this account he calls attention to the other conditions that frequently occur in connection with thymic enlargements, namely: 1, so-called thymic asthma; 2, sudden death in adults with persistent thymus; and 3, exophthalmic goiter.

Thymic asthma is the laryngismus stridulus of the English and American clinicians. Its anatomic basis has given rise to much discussion in German literature; the strife has concerned especially the relationship of the enlarged thymus usually present to the affection, and the controversy is still unended. Thymic asthma or laryngismus stridulus is usually a benign affection, and yet very many cases of sudden death in infants are ascribed to this disease. The paroxysm of laryngismus stridulus ending in sudden death does not require any description at this time. Suffice it to say, that some children in apparently full health have expired suddenly, in the presence of witnesses or in the arms of parents; others have been found dead in bed, and in at least one case criminal proceedings were brought against the nurse on suspicion of foul play. At other times infants have been found dead in bed beside the mother, and it has been thought that death was caused by mechanical suffocation, until the autopsy brought out the gross pathologic findings about to be referred to. Undoubtedly very many of the death certificates in which children are said to have died from convulsions include cases of thymic asthma.

Kopp[1] gave the name of thymic asthma to laryngismus stridulus on account of the enlargement of the thymus gland so often observed. The majority of the writers who have studied the anatomic changes in thymic asthma have noted the enlargement of the thymus, and while all do not agree as to its causal bearing yet the trend of opinion is to look upon it as the most important factor. In addition to the enlarged thymus the evidences of rickets are often observed in the bones. Grawitz[2] was the one to lay the greatest stress upon the importance of enlarged thymus in these cases.

In his second case, which concerns a six-month baby who died suddenly in its father's arms, Grawitz found a hyperplastic thymus, rickety changes in the ribs, enlarged intestinal follices, enlarged spleen and enlarged mesenteric glands.

Paltauf[3] made an extended study of the other lymphatic changes in thymic asthma, and he found that many of the infants dying from this affection presented a pale skin, well developed fat layer, enlarged spleen, and the epiphyseal changes of rickets, with enlarged lymphatic glands in various parts of the body. Now, these accessory changes which are usually present may be looked upon as indicating that thymic asthma is in some way related to some constitutional disorder, to rickets, or to the so-called "lymphatic constitution." The question as to the exact causation of the clinical symptoms of laryngismus stridulus still remains open. The pressure theory is hardly sufficient to explain all the cases of sudden death, and yet there can hardly be any doubt that hyperplasia of the thymus may cause dangerous and fatal dyspnea by producing tracheo- or broncho-stenosis, because Siegel[4] has reported the recovery of such a case in a 2½ year-old child after placing the enlarged thymus outside the chest cavity. The question has, however, assumed a broader form, since it has been pointed out that the thymic enlargement is only a part of the general hyperplastic condition of the lymphadenoid tissues of the body.

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[1] Ohlmacher, loc. cit.

[2] Deutsch. Med. Wochenschr., 1888.

[3] Wien. kl. Wochenschr., ii. iii.

[4] Centralbl. für innere medicin, 1896.

Sudden death in adults with persistent thymus has also been described in German literature. Most of the cases have occurred in young and apparently healthy adults, the victim suddenly falling dead. The unexpected death often takes place under conditions that give it a not only marked pathologic but also medico-legal interest. The persons may be found dead, they may die suddenly in the presence of spectators, while bathing, by falling into the water and drowning, during surgical narcosis and surgical operations. Cases coming under these various categories have been described by NORDMANN,[5] VON RECKLINGHAUSEN,[6] PALTAUF and others. Now, in these cases there has been found, first, a real enlargement or a persistent thymus, and secondly, hyperplasia of the lymphadenoid tissue in various parts of the body. The general tendency is to look to the whole picture of lymphatic hyperplasia for an explanation of the disease, rather than to confine the attention solely to the thymus.

It seems that after exhausting all possibilities, as cardiac muscular or ganglionic affections, capillary bronchitis, etc., a number of cases of sudden infantile death, with the symptoms of thymic asthma, and of sudden death in adults, both showing hyperplasia as well as persistence of the thymus and general lymphadenoid hyperplasia remain, which can not be explained on any other grounds than by assuming some connection between the changes in the lymphatic tissues and the fatal ending.

VON RECKLINGHAUSEN[7] also calls attention to the fact that the arteries are usually narrowed in the "lymphatic constitution."

The thymus gland is frequently persistent and enlarged in exophthalmic goiter. The frequency of persistent thymus in this disease is entirely too great to be accounted for on the score of accidental coincidence. This has been emphasized by HEKTOEN[8] in an article on hyperplastic persistent thymus in exophthalmic goiter. HALE WHITE[9] and others have shown that in some of these cases there are also other lymphatic hyperplasias, and it is very interesting to note that two of WHITE's patients died suddenly in much the same mysterious manner as those succumbing who present the signs of the "lymphatic constitution.

Our knowledge concerning the thymus and its function is practically *nil*, and yet the enlargement and the persistence of this organ in so many conditions, known by different clinical names and appearing as separate entities, can not very well be construed as without significance. It will be remembered that normally the thymus attains its full size at about the second year, and that it remains stationary until puberty, when it rapidly retrogrades, the lymphadenoid elements becoming displaced by fat and connective tissue, and finally only rests of the original structure remain. The mass of fat and connective tissue that results from this displacement of the thymus, which resembles the shape and the size of the organ, has been called the thymus fat body by WALDEYER.[10]

Now, it is singularly significant to observe that OHLMACHER, in four consecutive fatal cases of epilepsy, should come across an uniformly characteristic condition, namely, enlarged, persistent thymus, and a more or less well-marked general lymphadenoid hyperplasia. One of the four cases was found "dead in bed;" the anatomic condition coincides accurately with that found in several other enigmatic diseases that we have mentioned, some of which possess certain clinical analogies. One thing must be quite clear, and that is that somewhere and somehow the peculiar morphologic anomalies found in these cases of epilepsy and noted in thymic asthma, thymic sudden death and exophthalmic goiter, will in the end be found to have something more than a mere accidental bearing upon these diseases. Undoubtedly such observations as those that OHLMACHER has so carefully recorded and analyzed, especially if they are to be duplicated by others in the future, will serve to direct renewed attention to the part played in physiology by that rather anomalous organ, the thymus. One problem that invites continued investigation is the pathologic importance and relation of the thymic and lymphadenoid hyperplasia—the "*constitutio lymphatica*"—encountered in connection with the diseases that have been mentioned.

MEDICAL SOCIETY OF THE STATE OF NEW YORK.

The annual meeting of this society at Albany on the 25th, 26th and 27th of January, was of more than passing interest in some respects.

Of the forty-five papers read thirty-three were surgical. One evening was devoted to X-rays in medicine and surgery, and four long descriptive papers were read on the progress and technique of this subject. Of the subjects presented medico-legal testimony created some interest; the treatment of insane in the State brought out some comments by evident opponents. The dispensary abuse in New York was avoided, although two parties were present with maps and charts to prove its enormity and the value of dispensaries. Some New York men were trying to promote a scheme to organize a National society of delegates from the State societies alone to meet in Washington yearly to influence legislation. The other topics seemed to call out a great deal of mutual admiration, and were evidently restatements of facts conceded to be correct.

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[5] Correspondenzblatt der Schweizer Aerzte, 1889.

[6] Ohlmacher, loc. cit.

[7] Loc. cit.

[8] International Medical Magazine, 1895.

[9] British Medical Journal, 1886.

[10] Centralbl. für med. Wissenschaften, 1890.

The usual attempts to exhaust the subject, which usually begins with the introduction of the paper, were noticeable. The encyclopediac writer and the writers who are sure of the physiology, and who describe with startling minuteness most complex operations of nature, and the surgeons whose results are as certain as the repairs of a wagon, were all present. The president's address was an appeal to the profession for higher standards of practice, and a closer relation of social and professional work. It was interesting to note how thoroughly surgery absorbs the present interest of the profession. The great surgeons of New York City are gradually declining, and the inland city and village physician whose post-graduate courses have fitted him for surgical and diagnostic work, are coming into prominence. The writers of text-books and teachers in schools find consultation declining and their income falling off. The rush of specialists to the large medical societies to regain their losing prestige by papers and discussions before the country and general practitioner is increasing. The treatment and practice in large pauper hospitals is misleading, and often very impractical in private work. The results of such treatment when embodied in text-books and elaborate papers, can not be confirmed in private experience and hence confusion follows. Text works by men who never had experience except in hospitals and among paupers are not always good authority.

Physicians who relegate all science to their circles of work and who doubt everything beyond this, are happily growing less every year. State societies fail to be of much use when they confine their subjects to a few topics. When societies become large they should divide into sections where each subject can be treated at some length. The practitioners from the hill countries of New York have diminished interest in the State gatherings of medical men where only certain topics are discussed.

CORRESPONDENCE.

Foreign Correspondence—Vienna Therapeutics.

Paris, Jan. 29, 1898.

To the Editor:—While Germany is the acknowledged seat of expectancy in therapeutics, the Vienna school, in her attitude toward the effect of drugs in the treatment of disease, is inclined to go a little farther in her unbelief, and approach even the border line of nihilism itself. Nothnagel says: "When called to treat a patient, study the case well, and make the best diagnosis you can. When this is done, never ask yourself this question first: What shall I give this man or woman, but always ask, shall I give him anything?" In a late clinical lecture on a case of chronic atrophic Bright's disease, after describing in a graphic manner the history, symptoms and pathology of the case, he asked: "What shall we give this patient?" His answer was, "Absolutely nothing;" not even the milk diet that he had advised in an acute inflammatory case of the same affection. The next case was one of pleurisy with serous effusion, and in this, excepting advising opiates to relieve pain, and mild counter-irritants to the side, he was equally outspoken in his lack of faith in all medication of whatsoever kind.

Surgically, he would only advise interference if the quantity of the fluid was such as to materially interfere with respiration or the functions of the heart.

"Why is it," he asks, "that after more than a century of existence homeopathy with all its absurdities, still lives, and like Hamlet's ghost will not down. There is but one explanation, that is, that the regular school of medicine injure their patients by the drugs they give them. Is it any wonder that a man with the gonorrhea will seek the advice of a follower of Hahnemann, who will give him a little infinitesimal nonsense which will do him no harm, if no good, instead of consulting a regular practitioner, who would probably put him on the balsam of copaiba, a remedy that will disgust his palate, nauseate his stomach, derange his bowels and irritate his kidneys, but can have no curative effect upon the disease from which he is suffering. If the regular profession had followed the teachings of the Vienna school, homeopathy would have long since died a natural death."

Prof. Störk, in a late lecture on tuberculosis, said: "The treatment of this disease consist in nutrition and hygiene; medicines of all kinds are worthless, unless it be such as may aid digestion and assimilation. Creosote is now the rage, and the poor phthisic victim clings to this dernier hope with all the faith and tenacity with which the crusader followed his flag upon which was painted the sign of the cross. Every now and then you read of cases who have recovered from this disease after taking huge doses of this drug. What is the explanation? It is this; any stomach that can tolerate these doses, can digest food enough to cure the patient, who recovers, not because they took the drug, but in spite of it."

I have visited Vienna at intervals of ten years, and this is my third visit. I find with the lapse of each decade, the treatment of the sick is more and more expectant in character. Twenty years ago, in the treatment of typhoid fever nearly every patient was submerged into a tub of cold water, several times in the twenty-four hours. Now, such a treatment is only carried out in a minority of cases. Though cold sponging is still a general practice, patients are now only regularly tubbed whose temperature is very high, and where such temperature profoundly affects the nervous system.

I saw carried out in one service a plan of tubbing that struck me as rational. It was to put the patient in a bath 2 degrees C. below the temperature of his body, add cold water to this so as to reduce the temperature, 1 degree every five minutes, until 30 degrees is reached, and then allow the patient to remain in the tub ten minutes at this last temperature. No medicines are given with a view of affecting the general course of the disease. If the patient at the outset be constipated a calomel purgative is given, followed by a saline if necessary. After the alimentary tract is thus once thoroughly evacuated all purgatives are thereafter eschewed, the bowels being moved once in twenty-four or forty-eight hours by an enema of cold or tepid water.

The reason assigned for this mode of treatment is that cases do better where the bowels are inclined to constipation, than in those in which there is a diarrhea. Light wines are given during the entire course of the disease and the patient is nourished with raw eggs, milk and animal soups. Great stress is laid on the diet that the patient takes, and he is never allowed an unrestricted one until four weeks after all febrile symptoms have disappeared.

I have tried in a modest way to do a little missionary work in one of the medical services here in Vienna for Dr. Woodbridge's treatment of typhoid fever. I find, however, that my efforts have been an utter failure. I am met with the argument that the disease from earliest manifestation is a constitutional one, the local lesions only playing a secondary role. That while the specific germ that produces the disease first gains access to the blood through the alimentary tract, later on we find this germ abundantly in the spleen and other internal organs, but only in small numbers, comparatively, in the intestinal tract, so that it was only after the introduction of the Widal method that a diagnosis of the disease through bacteriologic investigation was rendered at all practical, though much labor had been exhausted in the examination of the stools for this germ.

I am surprised, however, to find that in spite of the extensive discussion that this subject has attained in the medical journals in America, not a physician in any of the half dozen hospitals here in Europe to whom I have spoken of the matter, had ever heard of it before.

The treatment of pneumonia is as expectant as possible. The cold applications to the chest, so much vaunted by some of the good men with us, is only used in one of the services here as a regular rule of practice. Expectorants, and especially those of a nauseating character are not used, but if the cough be dry and troublesome, in their stead, tar and eucalyptus is dropped into hot water, and the patient is allowed to inhale the hot vapor from these substances. To relieve the pleuritic pains, Dover's powder is given, and chloral is administered, generally per rectum, to quiet the nervous system and procure sleep. When symptoms of heart failure manifest themselves digitalis, caffein and brandy are given. In the management of heart lesions Nothnagel eschews all medication as long as circulatory compensation still exists, and is especially emphatic in his opinion that digitalis is of no service and often harmful, until this condition of things appear in the course of valvular lesions of this organ. When, however, edema of the extremities, dyspnea and the like symptoms show themselves, he puts his patient to bed and puts him on large doses of an infusion of digitalis. He uses the remedy for three days, and then discontinues it for two days, and so on. The Oertel treatment of heart lesion by exercise, he only thinks applicable to such cases, where the muscular substance of the heart is involved and not the valves. He does not think that the tinctures and fluid extracts of digitalis are reliable at all.

Speaking of digitalis, I would like to ask the men who read this letter, whether or not they have settled down on a form of this drug that is satisfactory to them, and on which they can rely. If they have, they have been more fortunate than I have been. I have tried them all and have found nearly all equally disappointing.

Some years ago I listened to a series of lectures by the late Germain Sée on the action of this drug in health and disease. They were masterpieces both in a scientific and literary point of view. He discarded all the crude preparations of the plant and relied entirely on the alkaloid digitalin. I followed his teachings for a few years, but often being dissatisfied with the action of the remedy, I abandoned it except for hypodermic use, and have since then tried a variety of its crude preparations.

I was younger then than I am now and I must with some humility and shame acknowledge that I was first induced to drift away from old friend digitalin by one of those long, parrot-tongued agents of one of the thousand and one manufacturing drug houses that infest our country, and are such incorrigible bores to a busy practitioner. Some man who has more brains than they have, write them a little speech; they commit it and deliver it with an unerring accuracy to every unfortunate doctor that they pour down upon. An agent from Cincinnati first struck me. His house produced a tincture from a German grown plant that nothing on earth could equal. After that a babbling agent from Philadelphia, one from Detroit, a horde from St. Louis invaded my sanctum one after another, and like Eve I lost my head and was tempted and led astray by the sweet voices and charming manners of these unscrupulous commercial agents. Seriously, I believe that the stuff that these men are selling to a large number of our physicians, especially the younger ones, including as it does ready-made and compounded remedies for all imaginary diseases, is one of the worst stumbling-blocks in the way of a true advancement in the line of therapeutics.

Huchard, in a late number of *Le Journal des Practiciens* treating of this subject, discards all crude preparations of digitalis on account of their variation in strength, and uses digitalin alone. He claims that all cultivated specimens of the herb are next to worthless.

I have spent twenty months in Vienna, and have been a pretty constant attendant at one or the other of the two surgical clinics here. I believe that approximately I have seen 800 patients anesthetized during that time, and of these four have died on the table from the effects of the anesthetic. The agent used was always either pure chloroform, or that even more dangerous compound in my opinion, the A. C. E mixture.

Among the early axioms that I learned as a medical student was one that said statistics *never lie*. I believe now, however, that that proverb has been revised, and it is now safe to assert that statistics *always lie*. I am sure they lie and lie awfully in regard to the mortality following the use of chloroform as a general anesthetic; for those given by Dr. Andrews show such a mortality to be only one in 5000, while my observation shows a mortality of one in 200. In spite of the facts in the case which I believe will show, as Dr. Da Costa of Philadelphia wrote me, that chloroform is ten times as fatal in its effects as ether, in answer to the question as to whether the surgeon used chloroform or ether, sent out by me to a large number of surgeons in the United States, shows that three-fourths of those living west of the Mississippi River use the more dangerous agent.

What strikes me as strange, and may account for the terrible mortality of chloroform here in Vienna, is the fact that no attention is paid as to the position the patient occupies while under the anesthetic. Both the patients I saw die this winter were in a semi-erect position when the first fatal symptoms were manifested. Briefly the history of the last case was this: A healthy looking man, aged 51 years, was brought into Professor Gussenbauer's amphitheater to be operated on for a recurring sarcoma in the right maxillary region, and in which it was necessary to remove a large portion of the superior maxilla, and the outer third of the inferior maxillary bone. The patient was placed in a semi-erect position, the A. C. E. mixture was given, and when the operation had continued about thirty minutes and was about half finished, he ceased to breathe. The patient was now hurriedly placed in a horizontal position, a brisk stream of cold water was thrown from a height on his bowels and chest, artificial respiration was resorted to and kept up for two or three minutes. As no amelioration in the patient's symptoms seemed apparent at the end of this time, a tracheotomy was rapidly done, a tube introduced and Professor Gussenbauer sucked out about a drachm of blood from the trachea. A rubber tube was now introduced into the tracheal tube, and through this was thrown a gentle stream of oxygen gas. During all this time artificial respiration was kept up, and the stream of cold water kept playing on the bowels and stomach. Only at the end of thirty minutes were these futile efforts at the resuscitation of the patient abandoned. No hypodermic of either nitroglycerin, strychnin or brandy were tried.

Of all the surgeons I have ever seen operate Gussenbauer is the most painstaking in his efforts to save his patients from the loss of blood. Even in an ordinary laparotomy he ties from six to twelve blood vessels before he opens the peritoneal cavity. On the other hand, Pozzi, whose work I am now following, never ligates a vessel in the abdominal wound in doing the same operation.

In the case of the removal of the breast and axillary glands I saw Gussenbauer tie 107 blood vessels, in which case most surgeons would have tied only one-fourth of that number.

Fraternally yours,

W. S. CALDWELL, M.D.

The Appendicitis Question.

DETROIT, MICH., Feb. 14, 1898.

To the Editor:—It has been a rule in my life never to go into a controversy with people, although I have sometimes sent communications to the JOURNAL, giving my views when I disagreed with others. My friend from Richmond, Ind., has sent a long reply to my last communication, and, after carefully reading it, I have come to the conclusion that he is a nice, good fellow and a progressive physician at heart, and if we bring our views together I am sure we will perfectly agree, excepting on some minor details.

He quotes Treves and Thalamon, both of whom had limited experience with the operation of appendicitis, and whose opinions should not count alongside of such men as Robert Morris, J. B. Murphy, Joseph Price, Fowler and Deaver, men who have had hundreds of operations and seen the terrible results of procrastination. When a man who has operated ten, twenty or thirty times and who has had bad results, because he has not learned the *minute detail* of the operation, says you should not operate before the tenth day, except on those cases where a large abscess has formed, which is well walled in and which simply needs to be opened (which any tyro in surgery can do), but who, at the same time, allows a dozen other patients to die on the second, fourth, sixth or eighth day, when such men give their views *they do more harm than we do* who are obliged to take the other extreme.

It depends upon who operates. Often the surgeon, himself, infects the parts that are clean and the patient dies as a result of the operation, but a good abdominal surgeon, with perfect asepsis, will seldom have a patient die before rupture and general peritonitis, except as the result of some unforeseen accident. Ideas are charged to me which I never held nor expressed. There are any number of cases where I refused to operate because I saw the patient was convalescent, but said that if they had recurrence they should have an operation performed the first day. It is easy to say you will operate at the interval, but patients, if they feel perfectly well, will not submit to an operation at the interval, for which I do not blame them, as, they say, "perhaps I will never have another attack."

The other point is diagnosis. Some men can never diagnose a case of appendicitis, or only in rare cases. My views are not expressed on cases where a diagnosis had not been made. I do not operate by guesswork. I assume, in my communication, that diagnosis is made and that, with a rare exception, it can be made in the first twenty-four hours, before rupture has taken place. I am sure the Doctor will agree with me that it is better to operate the first day, or, for that matter, the second, any time before rupture has taken place. That is all I claim. I will admit if you have a fortunate case, where the rupture and the resulting abscess is well walled in and gradually works its way outward, and in the course of ten or fourteen days points at some place near the crest of the ilium, that it is easy and not dangerous to open that and let out the pus. At the same time, before this takes place, in many cases it ruptures into the peritoneal cavity, we have general septic peritonitis, or, the absorption of septic material is so great that your patient dies (in either case) on the fifth or sixth day. So that the controversy stands really here:

My friend will accept the dictum of a general surgeon with a very limited experience in abdominal surgery, like Treves, or some young man, also with a limited experience, like Thalamon, while I prefer the views of men who have operated on a couple of hundred cases each, like Price, Deaver, Murphy, Fowler, Morris and others.

1. He and I agree that a diagnosis should first be made.
2. He and I agree that a convalescent patient should not be operated upon.
3. He and I agree that patients absolutely recover without recurrence and without an operation.
4. He and I also agree that some patients need an operation, and if there is any difference in our views it is simply as to when is the best time.

I believe, with my limited experience, as I see only about fifty cases a year, that the greatest number of patients will be saved if they would all be promptly operated upon as soon as the diagnosis is made. So that, after all, we get so near together that there is no use splitting hairs about it, and I am perfectly convinced that Dr. Haughton is a nice, good fellow, that he means well, and what is more, I am sure he is progressive and wants to arrive at the truth, otherwise, we would never have heard from him. Yours truly,

J. H. CARSTENS, M.D.

The Australian Eunuchs.

CHICAGO, Feb. 10, 1898.

To the Editor:—In an article on "The Oriental Eunuchs," by Dr. Edmund Andrews, in the issue of January 22, in the paragraph on "Australia" the author refers to the natives limiting "the increase of families by crushing the testicles of the father after his first child is born." Referring to this point the facts below are not entirely relevant, but may prove of interest in this connection.

My brother, Mr. Fred Hessert, who has for over a year been sojourning in West Australia, has in his letters to me described some of the customs of the barbaric natives. Owing to the barren desert condition of the country, the natives prevent a too great increase in their number by certain surgical operations performed on the penis. When a boy reaches the age of puberty he is taken in hand by a number of old "bucks," who lead him into the "bush" and there perform on him an external urethrotomy. The opening is made with crude instruments, sharp stones, pieces of tin or old knives and the like obtained from the whites. The opening is made at the beginning of the *pars pendulosa* and is kept open so that eventually a fistula is produced. The object of this procedure is evident; in copulation the semen is ejected through the fistula and the possibility of impregnation reduced to a minimum. When the black desires to impregnate, he plugs up his fistula with a gum or resin obtained from a certain tree. The plug he keeps in place with a few turns of dried grass or vegetable fiber and he again becomes a potent factor.

Another operation that is practiced is to slit up the entire urethra from the perineum anteriorly. This is more radical, and permanently prevents the possibility of impregnation.

These operations are commonly practiced in West Australia at least, and inasmuch as the letters from my brother are exhaustive and in detail, and no mention is made of castration, I would infer that the latter procedure is practiced but very rarely in that region.

As the natives, even in the cold season, are very scantily dressed observation at this point is easy.

Repectfully yours, WILLIAM HESSERT, M.D.

How Squirrels Become Eunuchs.

HAYNEVILLE, ALA., Feb. 10, 1898.

To the Editor:—In the JOURNAL (Feb. 5, 1898) I read a communication from Dr. Eugene S. Talbot on the subject "Do Adult Squirrels Castrate Each Other?"

Castrated Squirrels are frequently killed in this country, and the supposition is almost universal that the operation is done through motives of jealousy in desperate combats.

This is one of the zoölogical fictions belonging in the same category with the horsehair snake.

The missing testicles have been destroyed by a parasitic worm peculiar to those organs of the *sciuri* family.

Yours, C. E. MARLETTE, M.D.

Oxytuberculin.

SANTA CLARA, CAL., Feb. 9, 1898.

To the Editor:—In regard to the "Oxytuberculin" treatment for consumption it is but just to the medical profession at large to comment on the other side. Any treatment which will not bear inspection can not be of much value.

It is a very noticeable fact that all of the cases seem to be diagnosed by one individual, viz., Dr. Hirschfelder. These cases are not presented to the unbiased medical profession for diagnosis before treatment. It is only after an alleged cure or "great benefit" that they seem to be exhibited. Nothing is said about the diet during treatment, which is a matter of very great importance. A patient suffering from tuberculosis, if placed upon a generous diet together with good hygienic conditions and a promise of complete cure, will frequently improve very rapidly. During such improvement, the bacilli become scarce or absent from the sputum. Such a patient may remain well or may succumb to the disease years later. No individual is justified in claiming a cure until at least two years have elapsed without any symptoms of tuberculosis whatsoever.

Living within a few miles of the producer of "Oxytuberculin," I have had opportunity to witness its use in a number of cases. In but one case has there been any apparent benefit. That was a case of asthma and no positive evidence of tuberculosis at all. The case has been reported "cured." No such results are obtained outside of the clinical department of Dr. Hirschfelder and his immediate professional friends as he reports from the inside.

It would appear that the "investigation" by a committee from the faculty of Cooper Medical College was a sort of star-chamber performance at which all medical men liable to be incredulous, inquisitive or over particular about details were excluded. Apparently it was a sort of love-feast participated in by the Faithful. Taken, all in all, there seems to be much assertion and but little evidence that any one has been cured by oxytuberculin rather than by natural forces inherent in the human body, aided by good food and nursing.

Yours respectfully, E. H. SMITH, M.D.

A Correction of Dr. Charles Denison's Article: "The Antitoxic Treatment of Tuberculosis."

CHICAGO, Feb. 14, 1898.

To the Editor:—Dr. Charles Denison enumerates in the above mentioned article the different therapeutic products obtained from cultures of tubercle bacilli: the tuberculin Koch, the tuberculocidin and antiphthisin (Klebs). As No. 4 he gives "tuberculinum purificatum, which name Dr. Karl v. Ruck of Asheville has given to his manufacture of practically the same preparation." In a foot note the manner of preparation of the last is given, absolutely identical with the method published by me in 1894 for the preparation of tuberculocidin.

As Dr. von Ruck, so far as I know, has never published the formula of his "tuberculinum purificatum," I can not say if Dr. Denison is in error or if Dr. von Ruck has brought on the market a preparation the same as tuberculocidin, simply using another name. Probably the first suggestion is the correct one, but the profession should be enlightened on this point by Dr. Charles Denison, Denver, or Dr. Carl von Ruck, Asheville, N. C. EDWIN KLEBS, M.D.

The Idaho Medical Practice Act.

BOISE BARRACKS, IDAHO, Feb. 8, 1898.

To the Editor:—The item in the JOURNAL for January 29, announcing that the supreme court of this State had declared the medical law unconstitutional because it had passed the senate irregularly, is calculated to create a wrong impression among those who should know the facts.

The bill was passed regularly, but the journal of the senate, which should have stated "the bill was then read a third time in full by sections and passed," simply stated, "the bill was then read a third time and passed." The constitution of the State was complied with but the journal was incomplete. On this technicality the bill was pronounced unconstitutional. Verily, on what a slight thread hangs the fate of medical legislation, even after as long and stubbornly fought contest as that by which our "dead" law was procured! Very truly yours, M. W. WOOD,

Chairman Committee on Legislation Idaho State Medical Society.

Tubercle Bacillus.

WARREN, PA., Feb. 12, 1898.

To the Profession:—Any physician knowing of cases in which tubercle bacilli were found in the sputum, without any other physical evidence of disease in the lungs, and having seen such cases for a period of several years, noticed no further progress of the disease, will confer a great favor on the undersigned by reporting the same to him. I desire to obtain evidence on the import of bacillus tuberculosus in the sputum.

M. V. BALL, M.D.

PUBLIC HEALTH.

Progress in Formaldehyd Disinfection.—For two years the Chicago Health Department has been investigating the claims made for formaldehyd as a disinfectant with especial reference to the practicability and value of its use for household or domestic disinfection. For this latter purpose the following requirements must be met: 1. A light portable apparatus of simple construction and easy manipulation. 2. The evolution of a quantity of the gas in from one hour to an hour and a half sufficient for the area to be disinfected. 3. The killing of a majority of all non-spore-bearing bacteria, both in a moist and in a dry state, in a six-hour exposure, and some degree of penetration in this time. 4. Reasonable cost of disinfection per 1000 cubic feet. These requirements are made necessary by the conditions under which most of the department disinfections are made. The greater number are in the poorer districts of the city, where the dwellings and apartments are of loose construction and not uniformly warmed in cold weather. As a rule, the tenants continuously occupy the entire space at their command and on this account they are not infrequently obliged to walk the streets until the disinfection is completed. The time most available is during the middle of the day, and the rooms must be opened in time for the preparation of the evening meal. The great extent of the city, requiring the disinfectors to travel long distances, precludes any heavy or cumbersome apparatus, and the operators are not sufficiently skilled as mechanics to operate valves, thermometers and gauges with which many of the appliances tested are furnished. As all manner of articles are to be disinfected, including clothing, bedding and even kitchen utensils, the disinfecting agent must show reasonably destructive properties toward all kinds of bacteria cultures exposed and especially toward the pathogenic varieties. Every known form of formaldehyd disinfector has been tested during this period, including four using methyl alcohol, two using formochloral, one for the combustion of paraform pastils, and a number using formalin and special compounds. Without going into details at this time the statement may be made unqualifiedly that no apparatus or method thus far tested has fully or even fairly met the requirements deemed essential for municipal disinfection, as above enumerated. Quite recently, however, a device for the vaporization of formalin, in an open vessel containing asbestos chips or fiber, was brought to the notice of the Commissioner, and the tests of this device, ordered by Dr. Reynolds and conducted under Dr. Gehrmann's supervision, have led to a still further simplification of the apparatus and more recently to the use of formalin diluted by the addition of three times its volume of water. The simplified apparatus consists of a shallow granite-ware vessel, of half-gallon capacity, supported over a methyl-alcohol lamp, capable of holding twelve to sixteen ounces of the wood spirits. The asbestos has been found unnecessary, since it does not prevent the conversion of a larger percentage of the formic aldehyd into inert paraform than when it is not used. Tollens and Mayer had already demonstrated that the polymerization of formic aldehyd does not take place with water at 100 C. when in dilute solution, and the results of Dr. Gehrmann's experiments on this line show that whatever amount of polymerized aldehyd may be formed during the concentration resulting from vaporization can be re-converted into the simple form by a further addition of boiling water. One pound of the formalin solution of 40 per cent strength contains, approximately, 200 grams of formic aldehyd and, as from 30 to 50 grams are sufficient for the disinfection of 1000 cubic feet of space, one pound of the solution should be sufficient for the treatment of 4000 cubic feet, provided all the formaldehyd can be vaporized. In practice the experiments thus far conducted show that by diluting the ordinary solution with three times its volume of hot water and then boiling for half an hour, from 40 to 50 grams of the gas will be disengaged, quite sufficient to disinfect 1000 cubic feet. Whatever paraform is produced may be utilized for the next disinfection by the addition of boiling water; thus there is no waste. A six hours' exposure under these conditions has given better results in the sterilization of cultures than has been obtained by any other method, and the other requirements, simplicity and portability of apparatus, rapid evolution of the disinfecting agent and brief duration of exposure, together with reasonable cost of disinfection, are also more nearly met. The results have, indeed, been so satisfactory and the remarkable bactericidal properties of formic aldehyd have received confirmation in such a practical manner through these experiments that, at the suggestion of the Assistant Commissioner, Dr. Reilly, an inexpensive vaporizer has been devised by Dr. Jaques, chief of the diphtheria corps, for use in the room occupied by a diphtheria patient during the case. This vaporizer consists of a shallow cup supported over an ordinary cheap lamp, such as is made for coal-oil or kerosene. Methyl alcohol is used for the flame. The cup is nearly filled with a solution consisting of about one part of 40 per cent. formalin and five parts of boiling water. The flame is so adjusted as to keep the solution just at the boiling point. The device in use costs less than twenty cents. This is furnished and used in all charity cases of diphtheria treated exclusively by the department, and is believed to be useful in limiting the danger of spread of the contagion to attendants and others, and to effect some degree of continuous disinfection of the room and its contents during the progress of the case.

The Caffery Bill.—The Senate Committee on Public Health and Quarantine at Washington has submitted to that body, through Senator Vest of the committee, a report upon the various plans which have been referred to it for the creation of a Department of Public Health. As might have been anticipated from the constitution of that committee, the report is wholly in the interests of the Marine-Hospital Service, which, with the powerful support of the Treasury Department, has better facilities for persuading Congressmen than can be enjoyed by any interest or interests distant from Washington. The Marine-Hospital Service was established in the Treasury Department for the sole purpose of caring for the sick sailors of the merchant marine. Such hospitals were once necessary because the general hospitals were few and hardly sufficient for the needs of the permanent population in their vicinity; but the seaport cities have now hospital accommodations large enough to receive the ordinary sailors, while those attached to the navy would naturally be still cared for in the hospitals of that service. Under a succession of energetic chiefs the Marine Hospital has acquired functions foreign to its organization, and now demands the oversight of the public health work of the nation, a function not justified by anything in its constitution or experience. If any existing department in Washington could be properly placed in charge of our quarantine work, the navy would seem to be the proper body, for its medical officers have visited all quarters of the globe and are more familiar than any other public servants with the foreign diseases which produce so much disturbance when introduced into this country. The great sanitary need of the country, however, is something of far greater importance than a quarantine against yellow fever or cholera. The disgraceful deficiency of the government at Washington in this regard lies largely in the fact that a few cities and less than five States have done the only creditable public health work of the country in later years. It has been the hope of many that the growing belief in really scientific methods for the prevention of disease might find some encouragement in the halls of Congress; but it now seems probable that the same Senate is willing to hamper the methods of investigation which have given us a means for controlling diphtheria and to enlarge the powers of the Marine-Hospital Service for the sole purpose of creating a quarantine against yellow fever and cholera alone. The larger part of Senator Vest's report, which accompanies Senate Bill No. 2680, is devoted to the discussion of the constitutional right of the United States to protect its inhabitants against a contagious disease introduced into this country from abroad; and, fortunately, the conclusion is reached that the general government has that right, but it hardly seems necessary at this late day to spend much time upon the question of a right to save human life when Congress has more than once authorized more drastic measures for the suppression of diseases among the domestic animals than any now demanded for man's protection. So long as the Senate regards its associate from New Hampshire, Dr. Gallinger as a sufficient representative of the present views on preventive medicine, we are not likely to get any better plan for a public health service than this presented by Senator Vest; but if any of our readers are in a position to do missionary work in instructing any Senator in the beneficent functions of the great sanitary boards of other countries, let such hasten to the task.—Editorial in *Boston Med. and Surg. Journal*, February 10.

Origin of the Fever of 1897.—The committee of the legislature of Mississippi, which went to Ocean Springs, in that State, recently for the purpose of investigating the origin of the yellow fever, with which the Southwest was afflicted last summer and fall, reports that the epidemic did have its origin in that place, but that it was not brought there from the Marine-Hospital Service quarantine, as has been charged, or by Cuban filibusters who fitted out a filibustering expedition there in the early part of last summer, but that it was introduced there from Guatemala by a Mississippi family that had been temporarily staying in that country. The family came to this country on the steamer *Breakwater*, and reached Ocean Springs early in April. None of their baggage was disinfected. Soon after their arrival at Ocean Springs one of their number became ill with fever. Within a few days other cases of fever made their appearance in the vicinity of the first case, and fever of some character prevailed at Ocean Springs all summer, though it was not until September that it was diagnosed as yellow fever. In all the Southern ports strict quarantine goes into effect on May 1. It is apparent, if this report of the committee of the

Mississippi legislature is to be relied upon, that strict quarantine against yellow fever countries ought to go into effect much sooner, because it was in April that the disease was introduced into Ocean Springs. In this connection it is recalled that it was in March that the *Emily B. Souder* is said to have introduced the yellow fever into New Orleans March, 1878, the year of the great epidemic of yellow fever in the Mississippi Valley. If what is said in respect to the origin of the fever last year and 1878 is correct, it is evident that the disease can be introduced into a port in comparatively cool weather, that it may linger there months and finally develop into an epidemic under favorable conditions when the hot weather comes. The conclusion is that all the South Atlantic and Gulf quarantine officers ought to be on the lookout for the fever all the year around, and that the quarantine regulations at all these ports ought to be uniform, and strictly enforced by competent men. —*News*, Savannah, Ga., February 5.

ASSOCIATION NEWS.

Chicago Gynecological Society.—The Chicago Gynecological Society entertained the Trustees of the American Medical Association, the evening of February 18, in the Stewart Building. The following program was presented: Exhibition of specimens; exhibition of instruments; report of cases; "The Removal of Fibroid Tumors of the Uterus without Hysterectomy," by Dr. E. E. Montgomery of Philadelphia; "Vaginal Hysterectomy and Igni-Extirpation," by Dr. Joseph Eastman of Indianapolis; "The Rectal Reflexes in relation to Gynecologic Work," by Dr. J. M. Mathews of Louisville; "Uretero-vaginal and Uretero-abdominal Fistulæ," by Dr. A. H. Ferguson.

Collation. The guests of honor were Alonzo Garcelon, M.D.; G. C. Savage, M.D.; I. N. Love, M.D.; E. E. Montgomery, M.D.; J. M. Mathews. M.D.; C. A. L. Reed, M.D.; Joseph Eastman, M.D.; J. T. Priestley, M.D.; Truman W. Miller, M.D.; John B. Hamilton, M.D.

SOCIETY NEWS.

New York State Medical Society.—The Society convened in annual session at Albany January 25. Among the papers of general interest was one by Dr. William Warren Potter of Buffalo, President of the State Medical Examining Board, entitled "Medical Education; the State License to Practice Medicine." Dr. John H. Pryor, also of Buffalo, presented a paper on the duty of the State and county in reference to the treatment and care of consumptives. He advocated the establishment of a colony for consumptives upon State lands in the Adirondack region. "The Hygienic Management of Dairies," and "The Municipal Control of Milk Supply in Cities and Villages, with Report of Health Regulation," were read by Dr. E. F. Brush of Mt. Vernon and Dr. W. H. Heath of Buffalo, respectively. Dr. Heath's paper recommended quarantine in the dairies from without, carefulness in issuing dairy licenses and legislation requiring sanitary conditions in transportation. He also advocated the plan of not allowing small grocers to handle milk, as much disease undoubtedly lodged in the fluid while in those places, since these people neither know how nor are able to properly store the milk. Other papers were read pertaining to the diseases of women by R. J. Wilding of Malone, Herman A. Hayd of Buffalo, Edwin B. Cragin of New York, W. E. Ford of Utica, J. Riddle Goffe of New York. Papers were also read by George M. Edebohls of New York, M. D. Mann of Buffalo and J. E. Walker of Hornellsville, and Dr. P. M. Wise had a paper on "The Past, Present and Prospective Methods of Treatment of Insanity in the State of New York." Other papers were: "A Year's Work in Appendicitis," Herman Mynter of Buffalo; "Lessons from Six Cases of Appendicitis," William B. Jones of Rochester; "Congenital Dislocation of the Shoulders Backward, with a Report of Seven Cases and an Operation for its Relief," A. M. Phelps of New York; "The Treatment of Rachitic Deformities," Reginald H. Sayre of New York; "The Management of Undescended Testicle in Hernia Operations," William B. DeGarmo of New York. The following officers were elected: President, John O. Roe of Rochester; vice-president, E. F. Brush of Mt. Vernon; secretary, F. C. Curtis of Albany; treasurer, Charles H. Porter of Albany. Drs. Frank Van Fleet of New York, Arthur G. Root of Albany and Ernest Wende of Buffalo were appointed a legislative committee.

Salt Lake County Medical Society.—At the last annual meeting of the Salt Lake County Medical Society the following officers were elected for the ensuing year: Philo E. Jones, president; George H. Penrose, vice-president; E. I. Thorne, treasurer; H. S. Scott, secretary. This is the oldest medical society in the intermountain region and has a membership of seventy. The Society's meetings are held the second and fourth Monday evenings of every month.

NECROLOGY.

John Cromyer, M.D., University of Toronto, Canada, 1852, died at his home in Buffalo, N. Y., February 11. He was born December 22, 1825 in Black Rock, a suburb of Cork, Ireland, and in 1837 came to this country. In 1859 he removed to Buffalo, where he became widely known as a medical scholar, apt debater and the possessor of many attractive qualities. He was a member of the American Medical Association, a founder and ex-president of the New York State Medical Association, to the reputation of whose series of Transactions he annually contributed in various ways, and he was besides for many years an honorary member of the Ontario Medical Association.

George C. Briggs, M.D., University of Michigan, Ann Arbor, 1853, died from cardiac disease while driving to his home in Burlington, Vt., late on February 11. His horse brought his body to his door. In 1876-77 he was professor of materia medica in the University of Vermont and in 1873 was representative for the town of Franklin in the Legislature. Besides he was a leading member of the Vermont State Medical Society and consulting physician of the Mary Fletcher Hospital in his residential town.

Frederick L. von Suessmilch, M.D., Delavan, Wis., a native of Hanover, Germany, died February 10, aged 77 years. He participated as surgeon in the civil war, being attached to one of the Wisconsin regiments. The city of Delavan has repeatedly elected him mayor, and he was for many years a member of the State Board of Health. He was graduated from the Royal Medical and Surgical College, Dresden, Saxony, in 1848.

G. A. Wilder, M.D., one of the oldest physicians of Circleville, O., died suddenly January 30. Dr. Wilder served for many years on the Board of Education and was a member of the Pension Examining Board under President Cleveland. He graduated from the Berkshire Medical College, Pittsfield, Mass., in 1864.

William H. Helm, M.D., University of Pennsylvania, 1864, of Sing Sing, N. Y., died February 5.

Thomas H. Atkinson, M.D., Jersey City, N. J., February 4, aged 26 years.——M. E. Connolly, M.D., Dubuque, Iowa, February 2, aged 54 years.——Christian W. Dellenbaugh, M.D., Cleveland, Ohio, February 3, aged 68 years.——Ira E. Lyons, M.D., Huntington, Ind., aged 76 years.——T. T. McDonald, M.D., New Carlisle, Ind., February 7, aged 66 years.

Deaths in the Medical Profession Abroad.—Dr. Filippo Lussana, Emeritus Professor of Physiology in the Universities of Parma and Padua.——Dr. G. Alexianu, Professor of Medical Pathology at Bucharest.——Count Motta Maia, Professor of Anatomy and Operative Surgery in the Medical Faculty of Rio de Janeiro.——Dr. Francesco Bini, for many years Professor of Psychological Medicine at Florence, aged 84 years. ——Vallin, Professor of Clinical Surgery at Lille, France. Translator of Greig Smith's large work on Abdominal Surgery and author of numerous articles in this line. Physician to the pilgrims at Lourdes. Death in early prime from small anthrax on the wrist, contracted professionally.——Professor Zacharjin, Moscow, the famous Russian who devoted all his earnings as professor to founding scholarships for poor students. Although frequently summoned to the nobility he retained his simple, brusque manners to the last. When the Czar Alexandria III. was on his death bed, Zacharjin scandalized the Court by his dressing gown and farmer's boots which he wore everywhere. He gave his services freely to the poor but the rich had to pay high for them; his fee for consultation in certain families was 10,000 roubles. In one case he received 25,000 roubles for a single visit to the manufacturer Karetnikow, who also placed a special train at his disposal.

MISCELLANY.

The Ninth International Congress of Hygiene and Demography will convene at Madrid, April 10 to 17, with an exhibition of articles of interest in these lines. For particulars address Dr. Amelio Gimeno, Ministerium de la Gobernacion, Madrid, Spain.

Correction.—In the Journal of January 22, page 202, column one, seventeenth line from the bottom of the page, "rather than how" should read "rather than low"; also line thirty-two from top, "optical instruments" instead of "optic instruments."

A Cordial Spirit.—Convalescent (dictating): Please say to Mrs. Jackson that I thank her, not alone for the brandy peaches that she so kindly sent me, but for the spirit in which they were sent.

Bismuth Capsules; a New Application of the Roentgen Ray to the diagnosis of gastro-intestinal affections. An ordinary gelatin capsule (2.25 by 1.25 cm.) is filled with a non-toxic substance, opaque to the rays (metallic bismuth) and swallowed by the patient. Its varied course throughout the alimentary canal can then be followed with the fluorescent screen or by radiographs. It casts a clear shadow and the importance of the information thus derived in various affections of the stomach and bowels is evident, and also in the study of the effect of various medicaments upon the peristalsis, etc., of the gastro-intestinal tract. The capsule is arrested and lingers for days where there is stenosis of the pylorus or intestines. The interesting communication on the subject in the *Deu. Med. Woch.* of January 13, is from the eminent authorities, I. Boas and M. Levy Dorn of Berlin, who have tested the capsule on fourteen persons and regard it as a valuable contribution to the study of these viscera from many points of view. The capsule is coated with celluloid to keep it from dissolving and is stained a bright color to enable it to be readily detected in the feces. Powerful rays and a high tension current are needed, and it is well to note whether the shadow is more distinct from the front or rear. With much obesity, they found it impossible to trace the capsule lower than the stomach. In the majority of cases it was found either in the greater curvature, near Bauhin's valve or in the cecum. They never happened to witness its passage through the pylorus. In several cases of slight gastric disturbance the capsule was found after twenty-four hours, invariably in the cecum; less time was required for it to pass through the small intestine to the cecum than for its passage through the pylorus. They are now searching for some substance to coat the capsule that will allow it to be dissolved at will by a chemic agent. They conclude by stating that henceforth a neoplasm or constriction requiring operation can be located with precision by having the patient swallow a capsule as a preliminary to the operation.

Embalming Crushed Members; "No More Traumatic Amputations."—Several of our exchanges have recently been extolling the favorable results attained with Reclus' embalming process (*Rev. de Chir.*. January, 1897), in the traumatisms in industrial establishments, etc., as it saves the maximum of tissue and ensures the best stumps or an available member. Even from Chile comes the same cry of the increasing numbers of these accidents: "scarcely a day passes here in Santiago in which our *sui generis* surburban line does not crush the ankle or arm of some unfortunate," and the conservative embalming process is frequently practiced with most gratifying success (*Revista Medica*, October). The *Journ. d. Sc. Méd. de Lille*, December 25, describes the case of a woman eight and a half months pregnant, whose hand had been crushed in some machinery. For several days the hand was plunged for hours at a time in phenicated and disinfected hot water. Then a few whiffs of chloroform were given her and the toilet of the hand accomplished with quantities of very hot water and with solutions of sublimate and potassium permanganate, removing the loose projecting fragments of bone. Small squares of soft gauze impregnated with a poly-antiseptic salve consisting of all the substances currently used in surgery (less of those easily absorbed: sublimate, phenic acid and iodoform, and more of the others, boric acid, salol, antipyrin), were carefully fitted into every crevice, covering the hand entirely, completing the dressing with a thick layer of cotton and a tight, compressing bandage outside of all, to secure anastomosis of the vessels. The patient then left for a maternity where she underwent a normal confinement. The embalming dressings are never touched for three weeks, leaving to nature the task of separating the dead from the living tissues. When they were removed in this case, after twenty-six days, under a thick layer of a fetid, chocolate-colored fluid, the wounded surface was found covered with healthy granulations, with the necrosed parts entirely eliminated. An autoplastic operation was performed a week later, which healed rapidly.

A New Conception of Artificial Immunity.—Ehrlich has suggested that possibly intoxication by a special toxin may be due to the combination of the toxin with certain cells of the organism. According to this idea the antitoxins are nothing else than the constituent parts of normal cells constantly eliminated, constantly regenerated, in the course of the immunizing process, which neutralize the toxin circulating in the blood, thus protecting the organism against its injurious action. Wassermann and Takaki have been experimenting in this line and they find that they can neutralize a fatal dose of tetanus toxin by injecting healthy brain matter. Their premises are that if the antitoxin of tetanus is derived from the cells of the central nervous system as we have reason to suppose, it should exist normally in the brain and medulla. We can consequently confer immunity by introducing into the system nerve substance from these organs taken from healthy animals. These suppositions were confirmed by experience. Fragments of the brain and medulla of healthy animals, emulsioned in physiologic salt solution, were mixed with a fatal dose of tetanus toxin and the mixture injected into white mice, which are particularly susceptible to tetanus. No effects from the toxin were observed. A preventive injection of the brain emulsion several hours before the tetanus toxin was administered, also saved the animal from its effects. This power is more marked in brain matter than in the medulla. It is inherent in the cells themselves, as the centrifugalized fluid is without it, and also the serous fluid of the cerebral ventricles, and emulsions of other organs, spleen, kidney, spinal cord, etc. These facts, with the results of clinical observation, seem to show that the tetanus toxin has a special affinity for certain groups of cells of the nerve centers. This affinity exists not only between the toxin and the living nerve substance, but for nerve substance taken from the brain and medulla of dead animals. When an emulsion of these organs is injected with or before the tetanic toxin, the latter combines with the nerve substance circulating in the blood and is thus neutralized. Wassermann's experiments suggest a new style of opotherapy: to determine for each bacterial toxin the special organs for which it has an affinity, and protect the organism by injecting emulsions of this organ derived from sound animals.—*Berl. klin. Woch.*, January 3.

Tubal Pregnancy and Vaginal Celiotomy.—Dürhssen contributes a study of this subject to the *Arch. f. Gynek.*, Vol. xiv, No. 2, describing his technique in full, advocating the vaginal route, as the operation is less severe, without shock, or consecutive necrosis or suppuration, and the patient recovers rapidly. He has operated on fourteen in this way, all anemic. Eleven recovered by the twelfth day; one died soon after leaving the hospital; one had such hemorrhage that the operation was supplemented with vaginal hysterectomy. In another there was a secondary suppurating hematocele. In his nineteen abdominal operations, there were two deaths, two secondary suppurating hematoceles, and one secondary consecutive to the operation. He proceeds the same whether the tube is or is not ruptured: 1. He opens into the abdominal cavity through the anterior cul de sac. 2. Draws down the fundus of the uterus into the vagina with Museux forceps, and then the diseased tube. The peritoneal adherences are usually easily detached. 3. Ligature in stages and section of the adnexa with the thermocautery. 4. He replaces the uterus in the abdominal cavity and closes, separately, the peritoneum and the vagina. If the uterus is retroflexed, he performs vaginofixation. As far as possible, no drainage. Thus performed, vaginal celiotomy does not interfere with future normal pregnancies. He considers that every tubal pregnancy in the early stages should be extirpated as soon as the diagnosis is established. Anemia is not a counterindication, but he prepares anemic patients by injections of artificial serum immediately before operating. He ascribes the etiology to peritoneal adherences consecutive to perisalpingitis, modifying the shape and direction of the tube, or to catarrhal inflammation of the tubal mucosa, generally of gonococcic origin, which arrests the peristaltic movements of the tube, with the loss of the cilia of the cells. The passage of the fecundated ovum toward the uterus is thus hindered, while the same factors favor the penetration of the spermatozoon. He also admits the possibility of a puerperal atrophy in nursing mothers which would favor the development of tubal pregnancy.—*Presse Méd.*, December 25.

Physical Treatment for Obesity.—W. Kinternitz reviews the disadvantages of the various antifat methods in vogue in an address reported in the *Therap. Woch.*, of December 12. He states that they are all more or less weakening, underfeeding, with occasional after-results such as disturbed digestion, neurasthenia, etc., while the use of the thyroid tablets has been followed in numerous instances by serious disturbances of the circulation and nervous system, and even diabetes. He prepares the patient by a preliminary course of training of the vessels all over the body, by mechanic and thermic stimulation. He accomplishes this by reducing the temperature by a cold bath lasting fifteen minutes, more or less, followed by the "reaction promenade," which by muscular exertion raises the temperature again to normal, but does not produce the excessive heat it would if it had not been preceded by the cold bath. He also uses massage and dry packs in certain cases, individualizing in all, and repeating the process of withdrawing the heat of the body and the reaction warmth production two or three times in the twenty-four hours. A valuable adjuvant is the sweat cure, which strengthens the patient while reducing his obesity and leaves him with better nutrition in every respect. He reports astonishing success with the new "electric light baths," which do not raise the temperature nor accelerate the pulse, while the amount of sweat excreted is enormous. C. Schmidt has shown that the loss of an atom of alkali has a constant equivalent proportion to the albumin, so that for each single atom of alkali salts withdrawn in the respiration, nine atoms of albumin are restored to the circulation. As the perspiration lowers the amount of water and salts in the blood, angiopetal currents arise which draw the albumin out of the tissues into the blood; the nutrition of the muscular tissues is improved, while the organic albumin is protected, and fat alone consumed in the metabolism, and all the functions are more thoroughly performed. He reports hundreds of cases thus treated with a loss of forty-five pounds in weight in a few weeks, without interrupting or disturbing any functions and with increased instead of diminished energies. The process is purely physical. The aim is merely to increase the physiologic consumption of fat. The non-interference with the diet is an important advantage of this method in the frequent cases of bons vivants. The patient can be treated at home and the treatment resumed as necessary to maintain the benefits secured.

Washington.

Health of the District.—The report of health officer Woodward ended January 29, shows the total number of deaths to have been 100. Of which number 61 were white and 39 colored. Among the principal causes of death were diseases of the nervous system, 17; circulatory, 5; respiratory, 12; urinary, 7. There were 4 fatal cases of diphtheria, 1 of whooping-cough, 1 of typhoid fever and 3 of la grippe. There are 46 cases of diphtheria under treatment and 48 cases of scarlet fever.

Medical Association.—The standing committee of the Medical Association of the District of Columbia held a meeting on the fourth instant to determine which hospitals have agreed, and which have not, to enforce the recent rules of the Association regulating the admission and treatment of patients applying for free treatment.

Washington Obstetrical and Gynecological Society.—The two hundred and seventy-fifth meeting of the society was held at the residence of Dr. T. S. Smith, the president. Dr. W. T. Carr read the essay of the evening entitled, "Remarks on the Technique of Symphysiotomy with Report of two Cases."

Cincinnati.

The Mortality Report for the week shows: Stillbirths 5, zymotic diseases 16, phthisis 16, other constitutional 6, local 66, developmental 12, violence, 6; total, from all causes, 122; between 1 and 5 years 18; annual rate per 1000, 15.66; preceding week, 107; corresponding week 1897, 118; 1896, 134; 1895, 115.

The German Methodist Deaconess' Home has decided to erect a general hospital.

The Cincinnati Hospital is considering the advisability of erecting an isolation department for the care of patients suffering from infectious and contagious diseases. A bill has been drafted and will shortly be presented to the legislature asking for an appropriation of $100,000. It is the intention to have the internes and nurses who have charge of this department also isolated from the general hospital proper.

The Northeastern Medical Association of Kentucky held its annual meeting in Cincinnati last week. Dr. A. S. Robertson of Sherburne was re-elected president and Dr. Adamson of Maysville secretary. Dr. C. A. L. Reed invited the association to the Cincinnati Hospital, where he performed several operations in the amphitheater, among which might be mentioned three curettements of the uterus, one Tait's operation for lacerated perineum, one vaginal hysterectomy and one retroflexion of the uterus by abdominal section with fixation of the uterus by his own method.

Health Officer Withrow has presented his annual report. Dr. Withrow has inaugurated a number of innovations in the department since he entered last April. The most important being the establishment of a completely equipped chemic and bacteriologic laboratory and the anti-spitting crusade. The death rate is given as 13.7, which is the lowest ever reported for Cincinnati.

Dr. Edmund L. Gros of Paris visited Cincinnati last week en route to San Francisco. Dr. Gros was at one time assistant under Professor Charcot of Paris and he has done much original work along the line of suggestive therapeutics, scientific hypnotism and ophthalmology, his last work being a thesis on "Hydrophthalmia," which was recognized by the Faculty of Paris with a laureateship bestowed upon Dr. Gros.

Smallpox.—Recent reports show that smallpox continues to spread in Tennessee, and it is estimated that there are 1000 cases in Northern Georgia, Tennessee, North Carolina, Southern Kentucky and Virginia. There are several new cases in Bartow County, Ga., the total number there being fully 250. The disease has appeared at Troy, Anniston, and Hartzell, Ala., and is creating considerable alarm in mining districts of East Tennessee. Dr. Allbright of the State Health Board announced that a wholesale vaccination is the only thing that can prevent a general spread of the disease in Tennessee and in all the districts affected. Compulsory vaccination has been ordered, while places where the disease has not appeared are taking vigorous measures to prevent infection.

Louisville.

Corpses.—At the instance of the General Baggage Agents' Association of this city, a joint meeting was held this week of the Executive Committee of the State Board of Health, the City Health Officer, a representative of the Baggage Agents' Association and a number of undertakers of the city. The object of the meeting was to consider certain recommendations of Health Officer Allen in regard to the transportation of corpses. There are a number of provisions in the laws of the various States bearing on the manner of embalming, which cause considerable annoyance to baggage agents. The agents request a perfected system of embalming by competent men, and an effort to have a uniform law adopted in order to facilitate the work of transportation of dead bodies. Rules similar to those adopted by the Illinois State Board of Health will be urged and perhaps adopted by the Kentucky State Board of Health.

Embalmers.—In connection with the foregoing paragraph, the Laufles House Bill, which was reported favorably by the committee on public health, was defeated by a vote of 54 to 19. This bill provides for a license for embalmers before they can practice.

Dentists.—House Bill 93, which was also reported favorably by the Committee on Public Health, was defeated by a vote of 43 to 27. This bill was strongly urged for passage by the State Dental Association. It provided for re-enacting the law chartering the Kentucky State Dental Association, and increased their powers in issuing licenses to practice dentistry. It also removed the headquarters from Louisville to Hopkinsville. It is to be regretted that this bill failed in its passage. This was subsequently called up by Representative Vanzant, who moved a reconsideration. The motion carried and after a long discussion the bill was finally carried by a vote of 54 to 34.

Pulliam.—Dr. R. D. Pulliam of Leitchfield, Ky., died February 2, after an illness of less than two weeks. He was 63 years old and was one of the leading physicians of the county. He leaves a widow and eight children.

Wiley.—The Senate has confirmed the appointment of Dr. E. M. Wiley as Superintendent of the Central Kentucky Asylum for the Insane by a vote of 18 to 13. Strong opposition was brought to bear against the confirmation on purely political grounds.

Osteopathy.—A bill has been introduced into the Senate by Mr. Goebel of Kenton which, if it becomes a law, will enable the State Board of Health to effectually rid the State of these quacks. It provides that "any person is prevented from practicing medicine or treating any sick person by any method whatsoever without first complying with the act of April 10, 1893, to protect citizens from empiricism."

Free Medical School.—Among the bills advanced in the House is that one introduced by Mr. Lackey of Trigg County, providing for a State Medical College in connection with the Agricultural and Mechanical College at Lexington.

Denver.

Colorado Medical Library Association.—The fifth annual meeting of this association was held Jan. 17, 1898, Pres. T. H. Hawkins in the chair. Dr. Henry Sewall, the secretary, reported on the condition of the library. On Jan. 1, 1897, books, the property of the Denver Public Library, numbered 1559, and on Jan. 1, 1898, 1640; books, the property of the Colorado Medical Library Association, Jan. 1, 1897, 398; Jan. 1, 1898, 477; bound medical journals, Jan. 1, 1897, 1332; Jan. 1, 1898, 1910; Proceedings, Transactions, etc., Jan. 1, 1897, 1200; Jan. 1, 1898, 1320. It was voted to reduce the annual membership fee from $5 to $3. The secretary reported that some four hundred volumes of medical journals were awaiting binding, but that there was no money for that purpose. On motion of Dr. Fisk, a subscription was started to raise funds to bind these and $120 raised among the members. Drs. Munn and Sewall were appointed a committee to solicit subscriptions to complete the amount of $200. Officers for the ensuing year were elected as follows: President, William P. Munn; treasurer, Laura Liebhardt; secretary, Henry Sewall; librarian, John Parsons.

The Denver and Arapahoe Medical Society.—At the regular meeting of the society, January 25, Dr. Fisk brought forward a personal letter from Dr. Welch of Baltimore, asking the society to take some action upon governmental restriction of vivisection. The following resolutions were unanimously adopted:

Resolved, That it is the spirit of the medical profession of Denver that a strong protest be made against the passage of Senate Bill 1063, Calendar No. 136, entitled "A Bill for Further Prevention of Cruelty to Animals in the District of Columbia," and

Resolved, further that the president and secretary of the society be directed to communicate at once with our honorable Senators, urging them to do all in their power to defeat a bill that will do untold injury to the advancement of medical science and to the prevention of disease among mankind and animals.

Dr. Waxham read a paper, "Twenty-nine Consecutive Cases of Intubation with Twenty-seven Recoveries," and paid a tribute to the late Dr. Joseph O'Dwyer. All were treated with antitoxin. Of this number three were under 2 years of age with two recoveries, or $66\frac{2}{3}$ per cent. Eight were 3 years old with eight recoveries, or 100 per cent. Six were 3 years old with six recoveries, or 100 per cent. Six were four years old with five recoveries, or $83\frac{1}{3}$ per cent. Two were 5 years old with two recoveries, or 100 per cent., and four were 6 years old with four recoveries, or 100 per cent. Total, twenty-nine cases with twenty-seven recoveries, or 93.1 per cent. A mortality of only 6.9 per cent. This low mortality was attributed to the use of antitoxin. Dr. Levy also paid a tribute to Dr. O'Dwyer. He thought Dr. Waxham's conclusions correct. He thought that reports from those adverse to antitoxin were due to the fact that antitoxin was not administered soon enough in their cases. "Antitoxin is comparatively harmless and it may be administered in simple anginas, and even asthma has been benefited by its administration. A diagnosis by bacteriologic examination is not necessary in every case. Here in Denver our health department has been infallible in every one of my cases." Dr. Munn thought that Dr. O'Dwyer had contributed the best pediatric idea of the century in his intubation study. He reviewed some of the statistics afforded by the city of Denver. In 1893 there were reported 178 cases of diphtheria with a mortality of 20 per cent.; nineteen of these cases were cases of laryngeal involvement and sixteen died. Early intubation and early antitoxin reduced this to 9 and 10 per cent. for the years 1895 and 1896. In 1895, when antitoxin was introduced into Denver, 123 cases were treated by antitoxin and 9 died, while 125 cases were treated without antitoxin and 31 died. He spoke of Dr. Crouch's diagnostic stain which contributed so much to the work of the health department. "Protest Against Dermatitis Originating from Exposure to the Roentgen Ray," was the title of Dr. G. H. Stover's paper. Dr. Rogers thought Dr. Stover was too positive in his statement that the X ray from a static machine would not burn. He reviewed the history of the girl who was burned by the X ray in New York, after an exposure of eight minutes. Dr. Freeman stated that some recent French writers had collected a record of fifty cases of injury from the X ray. Dr. Rogers also spoke of a new apparatus for localizing foreign objects in the body. The description appears in a recent number of the *British Medical Journal.*

A Hospital in Boulder, Colo.—When the supreme court of Colorado handed down a decision last summer, denying the constitutional right of the University of Colorado to conduct a branch of the medical department in Denver, it became necessary to abandon the last two years of the medical course of the University. It was impracticable to attempt to conduct the two final years of the college without clinical work. A meeting of the citizens was held and it was decided to establish a hospital. The city council appropriated the sum of $3000, and the board of commissioners have assured an appropriation of $5000. It is expected that the building will be ready to receive patients by next fall.

Societies.

The following meetings are noted:

Connecticut.—Bridgeport Medical Society, February 1.

Illinois.—Kankakee County Medical Society, Kankakee, February 3.

Kansas.—Montgomery County Medical Society, Coffeyville, January 28.

Kentucky.—Floyd County Medical Society, Louisville, February 3.

Massachusetts.—Fall River Medical Society, February 2.

Michigan.—Saginaw County Medical Society, Saginaw, January 28.

Minnesota.—Minneapolis Academy of Medicine, February 2; Ramsey County Medical Society, St. Paul, January 31.

Nebraska.—York County Medical Society, York, February 1.

New York.—Niagara County Medical Society, Lockport, January 27.

Ohio.—Lucas County Medical Society, Toledo, January 28.

Pennsylvania.—Harrisburg Academy of Medicine, January 28; Oil City Medical Club, January 28; Luzerne County Medical Society, Wilkesbarre, February 2.

West Virginia.—Mason County Medical Association, Pt. Pleasant, February 1.

CHANGE OF ADDRESS.

Bond, S. S., from 818 7th St. to 818 N. J. Ave. N. W., Washington, D. C.
Cox, J. E., from Hooper, Colo., to 218 So. Broadway, Los Angeles, Cal.
Reed, B., from 4726 Kingsessing Ave. to 1831 Chestnut St., Philadelphia, Pa.

LETTERS RECEIVED.

Bernhardi, C., Rock Island, Ill.; Ball, M. V., Warren, Pa.; Brinkerhoff, W. C., Chicago, Ill.; Banister, J. M., Fort Leavenworth, Kan; Bloom, Homer C., Philadelphia, Pa.; Brothers, Samuel F., New York, N. Y.; Bradley, C. H., E. Las Vegas, N. M.; Bonfiler, A. I., Chicago, Ill.

Colvin, D., Clyde, N. Y.; Chesterman & Streeter, Philadelphia, Pa.; Caldwell, W. S.; Paris, France; Crowe, John W., Washington, D. C.; Cokenower, J. W., Des Moines, Iowa.

Denison, Charles, Denver, Colo.; Deputy Minister of Justice, Ottawa, Canada; Dercum, F. X., Philadelphia, Pa.; Doliber-Goodale Co., Boston, Mass.; Day-Gage, Mary, Kingston, N. Y.

Engman, M. F., St. Louis, Mo.; Elliott, H. G., New York, N. Y.

Fairchild Bros. & Foster, New York, N. Y.

Hektoen, L., Chicago, Ill.; Hughes, Chas. H., St. Louis, Mo.; Hamilton, R. G., Ochevedau, Iowa; Hessler, Robert, Indianapolis, Ind.; Hessert, William, Chicago, Ill.

Imperial Granum Co., New Haven, Conn.

Jackson, James H., Dansville, N. Y.; Jelks, James T., Hot Springs, Ark.

Kendell, J., Covington, Ohio; Kenyon News and Postal Subscription Co., The, Chicago, Ill.; Koechl, Victor & Co., New York, N. Y.; Krese & Owen Company, New York, N. Y.

Lusk, Z. J., Warsaw, N. Y.; Lichty, D., Rockford, Ill.; Lewis, Le Roy, Auburn, N. Y.; Lloyd, James H., Philadelphia, Pa.; Linley, Hubbard, Atchinson, Kan.

Merton, J. M., Calumet, Mich.; McIntosh Battery and Optical Co., Chicago, Ill.; Mullin, J. M., Milwaukee, Wis.; Mann, Wm. B., Evanston, Ill.; Moffett, W. E., Bible Grove, Mo.; Montgomery, Liston H., Chicago, Ill.; Milliken, Jno. T. & Co., St. Louis, Mo.; Moore, Dwight S., Jamestown, N. D; McBride, R. E., Houma, La.; Mercer, J. A., Chilton, Texas; Merck & Co., New York, N. Y.

Norris, A. L., Cambridge, Mass.

Polk, R. L. & Co., Detroit, Mich., (2); Pantagraph Printing and Stationery Co., Bloomington, Ill.; Pilling, George P. & Son, Philadelphia, Pa.; Phenique Chemical Co., St. Louis, Mo., (2).

Richards, R. M., Detroit, Mich.; Reed, Boardman, Philadelphia, Pa.; Reber, Wendell, Philadelphia, Pa.; Reed, C. A. L., Cincinnati, Ohio.

Sherer, J. W., Kansas City, Mo.; Stokes, Wm. R., Baltimore, Md.; Saunders, W. B., Philadelphia, Pa.; Sternberg, George M., Washington, D. C., (2); Scudder Bros. Co., The, Cincinnati, Ohio.

Talbot, E. S., Chicago, Ill.

Universal Medical Insignia Mfg. Co., Indianapolis, Ind.

Wellner, H., Concord, N. H.; Watson, W. S., Fishkill-on-Hudson, N. Y.; Woman's Medical College, New York, N. Y.; Wardner, Horace, La Porte, Ind.; Wingate, U. O. B. (2).

Young, F., Rural Dale, Ohio.

PAMPHLETS RECEIVED.

Annual Report of the Providence Retreat, Buffalo, N. Y., for 1896, Paper. Illustrated, pp. 24.

Annual Report of Second Hospital for Insane, Sykesville, Md. Paper, Illustrated, pp. 28.

Annual Report of State Board of Medical Examiners of New Jersey. Paper, pp. 30. Trenton, 1897.

Appendicitis Complicating Ovarian Cyst and Simulating Torsion of the Pedicle; Intestinal Resection with End-to-end Anastomosis by Means of the Murphy Button, with Recovery; Tonic and Spasmodic Intestinal Contractions with Report of Cases. By X. O. Werder, Pittsburg, Pa. Reprints.

Child Fetiches; King Arthur's Medicine; Law of Refraction, Change Following Increase or Decrease of Body Weight; Retinitis Pigmentosa without the Characteristic Pigmentation; Some Relations of Author, Publisher, Editor and Profession. By George M. Gould, Philadelphia. Reprints.

Cough Due to Lesions of the Nose and Throat. By. W. S. Anderson, Detroit, Mich. Reprinted from Medical News.

Diphtheria in which Antitoxic Serum was Used, with Some Observations as to Its Employment. By Wray Grayson, Washington, Pa. Reprinted from Penn. Med. Jour.

Parotiditis Following Celiotomy; Treatment of Uterine Prolapse, with Illustrative Cases. By Wilmer Krusen, Philadelphia. Reprinted from Am. Gyn. and Obstet. Jour.

Physiologic and Pathologic Relations Between the Nose and the Sexual Apparatus of Man. By John N. Mackensie, Baltimore. Reprinted from Johns Hopkins Hosp. Bulletin.

Playfair School of Midwifery, Chicago. Announcement for 1898.

Refrigeration as a Means of Preservation of Bodies for Use in the Dissecting Room. By E. W. Holmes, Philadelphia. Reprinted from Internat. Med. Mag.

Trade Pamphlets.

A Modern Pathologic and Therapeutic Study of Rheumatism, Gout, Rheumatoid Arthritis and Allied Affections. By E. L. Gros. E. Fougera & Co., New York.

Aseptolin-Edson: A Formulated Treatment for Tuberculosis, etc. Asepta Chemical Co., New York.

Minerva Medica. P. Blakiston, Son & Co., Philadelphia.

Purdy Electric Centrifuge. Williams, Brown & Earle, Philadelphia.

THE PUBLIC SERVICES.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from February 5 to 11, 1898.

Capt. Jefferson D. Poindexter, Asst. Surgeon, will report in person to the president of the Army retiring board convened at the Army Building, New York City, at such time as he may designate, for examination by the board. By direction of the President.

Major Louis S. Tesson, Surgeon (Ft. Ethan Allen, Vt.), is granted leave of absence for six months on surgeon's certificate of disability, with permission to go beyond sea, to take effect on or about Feb. 20, 1898.

Capt. William L. Kneedler, Asst. Surgeon, is relieved from duty at San Diego Bks., Cal., and ordered to report in person to the superintendent of the U. S. Military Academy, West Point, N. Y., for duty at that post.

Capt. Charles F. Mason, Asst. Surgeon, is relieved from duty at West Point, N. Y., to take effect upon the expiration of the leave of absence granted him, and ordered to Ft. Logan, Colo.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending February 12, 1898.

P. A. Surgeon L. H. Stone, retired, February 10.

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ORIGINAL ARTICLES.

REPORT AS RESIDENT PHYSICIAN OF THE ISOLATION HOSPITAL (YELLOW FEVER).

Read before the Orleans Parish Medical Society, Jan. 22, 1898.

BY HAMILTON P. JONES, M.D.

VISITING SURGEON CHARITY HOSPITAL AND ASSISTANT DEMONSTRATOR OF CHEMISTRY MEDICAL DEPARTMENT, TULANE UNIVERSITY OF LOUISIANA, NEW ORLEANS, LA.

The instituting of the Isolation Hospital and the choice of its site showed the wisdom of the board of administrators of the Charity Hospital and its officers, which was amply brought out by subsequent developments and results.

The site was an ideal one for the purpose, consisting of a large isolated square of ground, in a very sparsely settled district, containing main and outbuildings well grouped about its center, the nearest inhabited building being fully six hundred feet from any of the hospital buildings.

It is worthy of note that no known case of yellow fever occurred within a radius of ten squares of the hospital during the entire epidemic, and but one occurred at that distance before the establishment of the hospital.

The ambulance, although quartered at the Isolation Hospital, was under the absolute control of the Board of Health and was maintained by it, all patients being delivered to the hospital.

By far the majority of patients were brought in the ambulance, a great many in the city wagon, many, however, were brought in cabs, wagons and in the cars and some even came on foot. Those delivered by the ambulance and city wagon had always seen a reputable physician and were brought out on his diagnosis, the remainder were diagnosed before admission by me, and Dr. Veazie, if present; and accordingly were sent to the detention camp or Charity Hospital, if not suffering from yellow fever; if suffering from the disease, into the wards, or if only suspicious, were sent into a tent used for the reception of cases of that class.

I generally saw each patient and made an examination before removal from ambulance, and supervised the removal. No matter what the physical condition of the patient our invariable rule was to have them transferred from the vehicle in which they arrived, in the recumbent position, on a stretcher, to bed, without allowing them to lift a finger toward their own assistance. Too much stress can not be laid upon the importance of this procedure, and the same method should be pursued at the initial point.

The patient was conveyed directly from the ambubulance to his bed and placed therein, clothes and all; he was then stripped and given suitable apparel.

The patient's personal effects, money, etc., of value were disinfected and taken in charge by the Sisters, while the patient's clothes were washed, disinfected and placed in the fumigating room where two three-burner Truax-Greene-Hollister formaldehyde lamps were kept constantly burning.

Dr. Pothier our pathologist, at my request, placed therein air dried strips of cotton cloth which had been dipped in cultures of typhoid, Sanarelli and some germs obtained from the body of postmortem number one, of our series. These strips were subjected to the action of the formaldehyde gas for forty-eight hours; cultures under bacteriologic precautions were then made, which gave splendid growths, after expiration of thirty-six hours; the formaldehyde gas not having apparently affected the germs in the least. Investigations conducted at the Pasteur Institute and published in the *Annales* for Sept. 25, 1896, proved that formaldehyde was a good surface disinfectant for walls, etc., but had no penetrative power. I do not consider it efficient for the disinfection of clothing or anything requiring penetration.

I make these statements after mature consideration, as at an earlier period of this season I advocated its use. The formaldehyde lamps I consider especially unreliable.

The clothes were kept in these fumes until the patient's discharge. In case of death, the clothes were either destroyed by fire, or were given to some needy convalescent.

All infected linen, sheets, pillow cases, towels, etc., from the hospital were at once placed in a solution of bichlorid of mercury 1 to 1000, then boiled and washed. All urine, feces, urinals, night vessels, slop-pails and all utensils, such as sick-cups, thermometers, etc., were constantly disinfected with carbolic acid and solutions of bichlorid of mercury.

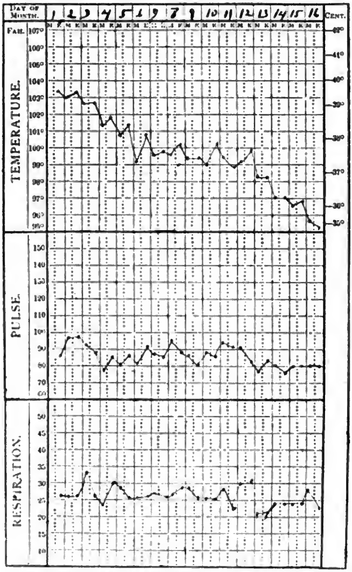
The utmost care was taken to destroy with fire all contaminating material capable of such treatment. The wards, halls, etc., were kept scrupulously clean and free from contaminating material, such as old shoes, rags, etc.

Catheters and surgical instruments were subjected to the usual process of sterilization.

In the cases of persons dying in the wards, the bodies were treated in accordance with the regulations of the Board of Health. The body was at once wrapped in a sheet wet with bichlorid of mercury 1 to 1000, after being divested of all clothing, and was then conveyed to the dead house. All burials whether by the hospital or by friends were done under the regulations of the Board of Health.

Cured patients were discharged after having their clothing and personal property thoroughly disinfected and their own persons given a thorough bath in a warm solution of bichlorid of mercury 1 to 2000, and being wiped off in pure alcohol.

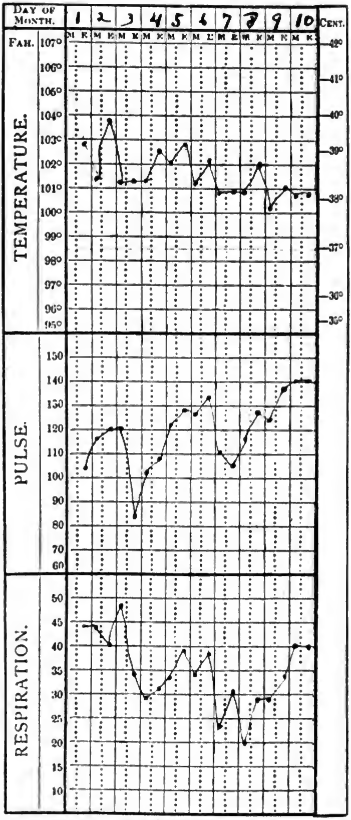
Of necessity no visitors could be allowed at the hospital on their own account, as well as on that of the inmates. Very few physicians were granted the privilege of visiting the institution, the welfare of the patients being our plea, as it is known that too much company, examination and discussion of symptoms is very injurious. Aside from Prof. E. S. Lewis, Dr. J. D. Bloom, Visiting Physician Veazie, and Pathologist O. L. Pothier, the following physicians were granted the privilege of prosecuting their studies in yellow fever in the hospital: Dr. P. E. Archinard, Bacteriologist of the Louisiana State Board of Health; Dr. Bernard Baker of Charleston, representtative of the Medical Society of Charleston; Drs. Geddings and Wasden of the U. S. Marine-Hospital Service.



Composite chart of forty-five cases of yellow fever treated at the Isolation Hospital.

Dr. O. L. Pothier, Pathologist of the Isolation Hospital, especially extended to these gentlemen the facilities of his department and the deadhouse for the prosecution of their labors and the obtaining of cultures.

Dressing rooms for the visiting physicians, ministers, priests, etc., were provided in a building constructed specially for that purpose at the front of the main building. Each visitor, without exception, was required to exchange his outer clothing for a suit of white duck, previously soaked in a solution of bichlorid of mercury which was allowed to dry on it; to exchange his shoes for canvas ones and to wear a cap. At the conclusion of the visit, soap, water, towels and the necessary disenfecting solutions were provided. By the indiscriminate enforcement of these regulations, the danger arising to the community, from the visits of physicians to the hospital, was reduced to a minimum.



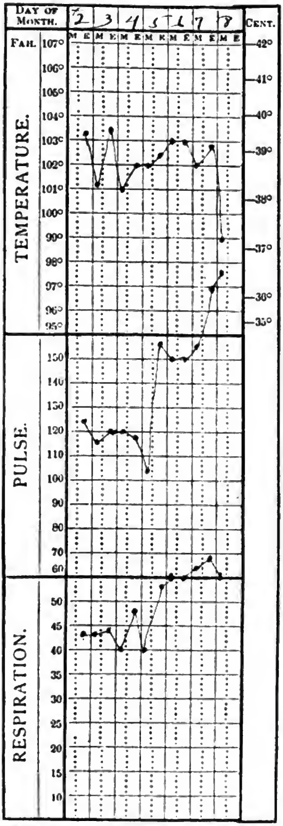
Composite chart of six fatal cases other than yellow fever, treated at the Isolation Hospital.

The pathologic department was of the greatest value and assistance in the intelligent treatment of the cases. In every case the urine was examined microscopically and chemically for casts, albumin, etc., daily or oftener as long as indicated; no small task when the number of cases is considered.

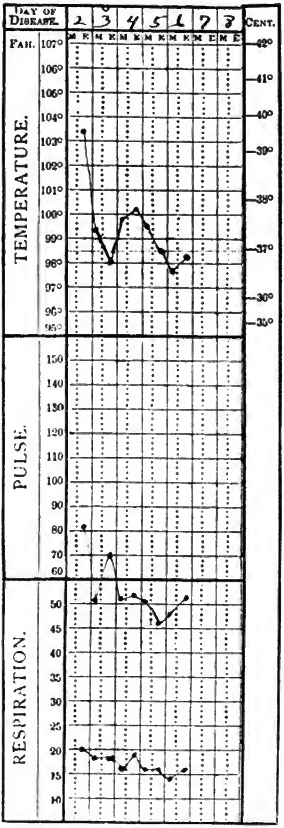
On admission the blood was examined for plasmodia malariæ and for Widal's reaction for typhoid.

The holding of postmortems was of importance in confirming the character of the disease, aside from familiarizing us with its pathology. The report of r. Pothier will show more fully the scope and value the work accomplished in his department.

As will be seen by the accompanying list there ere 216 admissions with 51 deaths from all causes, a mortality rate of 23.66 per cent. Of this number 202 were yellow fever, with 45 deaths, giving a mortality rate, in the hospital for yellow fever, of 22.27 per cent, exceedingly favorable when compared with the average death rate of the Charity Hospital for the 43 years preceding 1880 of 50.2 per cent.



Alma Brown, negro, admitted Oct. 2, 1897. Diagnosis, pelvic peritonis. General infection of peritoneal cavity and death. Inserted for mparison.

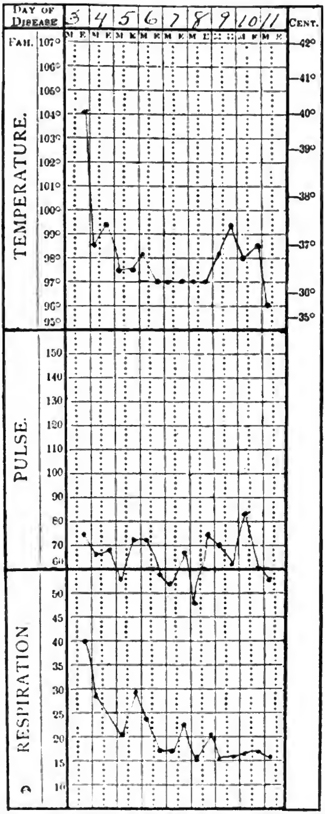


John Kline, admitted Oct. 6, 1897. Yellow fever; recovery. Duration, average case. A typical case; albumin 35 per cent., moist, bile stained casts, all varieties, and bile stained debris.

Sixty-five children under 15 years were treated, with two deaths, 3.07 per cent.

The death rate for New Orleans from yellow fever in 1897 was 15.67 per cent. for reported cases, and in 1878 was 16 per cent. It is reasonable to suppose that the proportion of unreported cases was the same in each year and that the severity of individual cases was the same.

Of the fourteen cases not yellow fever, six died, giving a death rate from other causes of 42.85 per cent.



Guseeta Mirata, admitted Oct. 25, 1897. Yellow fever; recovery. A typical case.

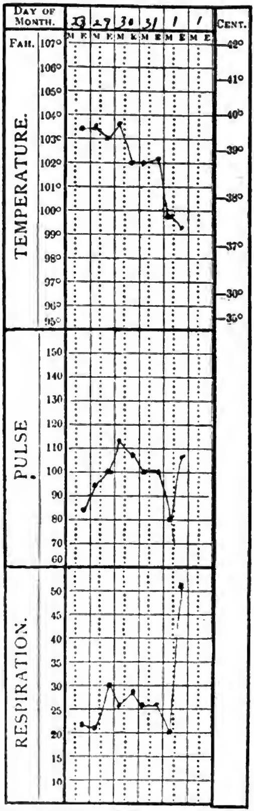
The cases were distributed as follows:

United States, 104 cases, 9 deaths, 8.65 per cent. death rate.

Foreign countries, 98 cases, 36 deaths, 36.73 per cent. death rate.

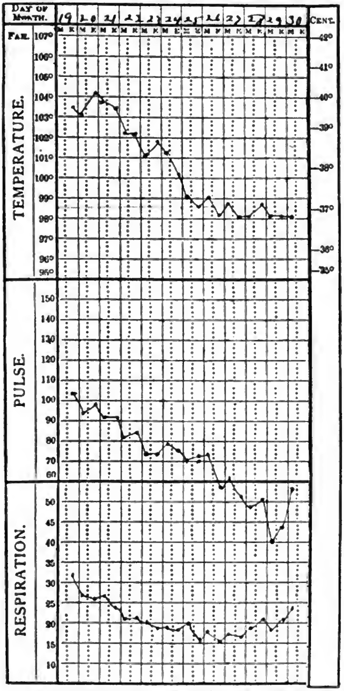
The great difference in death rates is due to the fact that Americans are better fed, are not as a class habitual wine or beer drinkers, are stronger and more enlightened.

The disease runs a more severe course among unacclimated cases as is shown by the small death rate among native Louisianians, 5.26 per cent. The more enlightened Americans, as a rule, reported their cases at once, while the foreigners concealed their cases until the last moment, bringing them to us in many instances too late to benefit them by treatment. These



Chas. Johnson, admitted Oct. 28, 1897. Yellow fever; death. Severe case in a Norwegian sailor; uremia, black vomit.

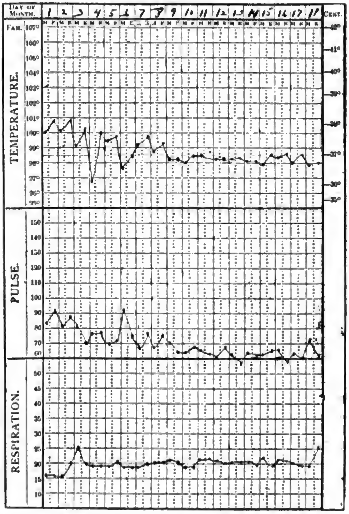
comparative death rates argue more plainly than words the necessity for early transportation, if moved at all, and the great danger of moving patients after the stage of calm has set in. The difference between the mortality in the Isolation Hospital and that of the Charity Hospital, for former years, is due to the careful and unremitting attention given them and to the fact that, in the Charity Hospital, those previously weakened by disease and injuries, were subjected to yellow fever when they were least able to resist it, and in consequence they died in great numbers. The wisdom of the board of administrators, if by nothing else, is amply proven by the diminished death rate of the Isolation Hospital. So far as I can judge the yellow fever of 1897 was the same in character as that of 1878; and I have no reason to believe that the death rate would not have been the same in 1897, as it was 1878, had all cases been treated in the Charity Hospital in 1897, as they were in 1878.



Hugo Hughs, admitted Oct. 19, 1897. Yellow fever; recovery. Severe case, marked jaundice, albumin 75 per cent., bile stained casts; slow and intermittent pulse irregularly suspended.

As a rule, patients were not admitted until the expiration of the second day of the disease and very frequently much later, especially the foreigners. Nearly all of the cases were of a very severe type as will be seen by the reports of the pathologic department and the clinical records.

The following facts will indicate the character of cases of yellow fever treated: Albumin was almost an invariable constituent of the urine at one time or another, ranging from a trace to 80 per cent., moist, casts, renal epithelium and débris, always bile stained, and other evidences of an acute inflammation of the kidneys were present in 125 of the recovered and in all the fatal cases. Black vomit occurred in twenty-five of the recovered and in thirty-nine of the fatal cases, complete suppression of urine occurred in four of the recovered and in thirty-three of the fatal cases.



Composite chart of twenty five recovered cases of yellow fever treated at the Isolation Hospital.

Uremic convulsions occurred in twelve of the recovered cases and in forty of the fatal.

I do not recollect having seen bile stained casts and débris without albumin being present and in every instance of yellow fever, which came under my notice, they were so stained. In several instances the finding of casts and débris not bile stained led me to suspect that the patient was not suffering from yellow fever, but from some other disease associated with kidney trouble, and subsequent developments confirmed the suspicion. A few days ago I examined the urine of a case giving very suspicious initial symptoms of yellow fever. No albumin, but one hyaline and two granular casts were found, not bile stained. I reported that I did not consider the case one of yellow fever, owing to this fact. The case developed into one of typhoid fever. We would expect, in very early stages of a case of yellow fever, in a person suffering from any cast producing renal trouble, to find casts not bile stained, which would, as the disease progressed, become bile stained. In any condition of the system associated with casts and bile-pigments in the urine, we would expect to find and have found the casts and the débris bile stained. I consider these observations of the greatest importance in the differential diagnosis of yellow fever and present this new and almost pathognomonic symptom under proper circumstances for what it is worth. The fact has been observed by Prof. Joseph Jones and others that the casts in yellow fever were bile stained; but the fact that this was of diagnostic importance has never been brought out before, so far as I know. Unfortunately I have not as yet been able to make any comparative observations on the presence or absence of the bile-pigments in the urine of dengue cases.

Hemorrhage from the bowels occurred in seven of the recovered cases and ten of the fatal; pneumonia, in one recovered case and one fatal; diarrhea in one recovered case and dysentery in two. Three recovered cases were associated with pulmonary tuberculosis.

The following complications were found in the recovered cases: paralysis two cases; delirium tremens two cases; peritonitis two cases; hysteria one case; round worms vomited by children twice.

The following is an analysis of the condition of the forty-five fatal cases on arrival: nineteen were moribund and died within a few hours of admission; thirty-three had complete suppression of urine; twenty-seven had black vomit before admission, and five, hemorrhage from the bowels.

Postmortems showed that over 40 per cent. of these cases suffered from some chronic trouble, either of kidneys, liver or heart.

These figures will explain in a measure the death rate of this institution as compared with others, and that of the city. It must also be borne in mind that every case was admitted here, no matter what the physical condition, in many instances after being refused admission elsewhere.

Bearing in mind the very important fact that yellow fever is a self-limiting disease and one that can not be arrested by drugs, our treatment was almost entirely symptomatic, each case being treated entirely on its own merits, our effort being directed rather to the prevention of bad symptoms than to their cure.

Every case should be and was regarded as serious and on account of the pathologic changes induced in the heart, liver, kidneys and other organs, etc., was given the closest medical attention, and most careful nursing. Since so many of the symptoms are due to the arrest of the functions of the skin and kidneys, efforts were directed to promote the activity of these organs during the progress of the disease, stimulating diuretics were avoided. The free use of hot mustard foot baths and hot cans, the regulating of the temperature of the room, large draughts of cream of tartar, lemonade, orange leaf tea, water, plain and carbonized, all tended to promote diuresis and diaphoresis.

Absolute rest in the recumbent position was maintained, the necessity for which was indicated by the cardiac weakness.

Pain in the head was relieved by phenacetin and the ice cap, while pain in the back and limbs was relieved by chloroform liniment, mustard plasters, etc.

Efficient but gentle purgation in the first stage was always beneficial, 0.52 or 0.65 grams of calomel followed by a dose of casto oil, Seidlitz powder or salts, usually being sufficient. It was observed that as a general rule those patients who received this treatment before admission, usually did better than those who had not. Purgatives, as a rule, were not administered during the stage of depression unless specially indicated by uremia or some such trouble, when calomel, in 0.32 or 0.65 gram doses, was generally given.

Where the stomach was overloaded with food in the early stages an emetic was administered with benefit, but it was rarely required.

Hyperpyrexia was treated by the administration of one or two doses of phenacetin, rarely more than two doses were ever given. reinforced with caffein and brandy. The administration of hot mustard foot baths, hot drinks and the application of hot cans to the patient, by inducing free perspiration, were efficient agents frequently used for the reduction of temperature. Sponging the surface under the cover with tepid water and alcohol, Florida water or vinegar, had a soothing effect on the patient and very frequently was efficient. The injection of large quantities of ice water into the rectum not only had an exceedingly prompt effect on the temperature, as a rule, but served to flush out the kidneys and promote their functions.

Arrest of the functions of the kidneys owing to the gravity and nature of the alterations in their structure is beyond the relief of drugs. However, as the urine was always intensely acid it was our universal custom to administer an alkali in one form or another, usually a mixture of bicarbonate of soda 0.65 grams to the dose in peppermint water. This not only acted as an anti-acid but was a very valuable gastric sedative and anti-emetic.

Much good was accomplished and the functions of the kidneys restored by the injection, high into the rectum by means of the rectal tube, of a pint or more of ice water, if indicated and the patient could endure it, or high enemas of a mixture of acetate of potash grams 2, infusion of digitalis 14.8 c.c. and water to make 1 liter; these were given every three or four hours as indicated. The dose of digitalis was regulated to fill indications.

Diuretin "Nolle" was used, but so far as I observed, without success. Fluids freely were our main reliance and were given the patients on the slightest pretext.

Dry cups were frequently used over the loins and kidneys, followed by the application of sinapisms; this procedure was in many cases very effective.

Retention of urine was a very common condition and was relieved as necessary by the catheter.

A few blood cells were occasionally found in the urine and hemorrhages from the urethra occurred in two cases, but in none could the quantity of blood present in the urine account for the quantity of albumin present. All varieties of casts were found. Complete suppression of urine is an almost invariably fatal symptom, and suppression either partial or complete is the chief cause of the hemorrhages from the stomach and bowels.

The following causes also contribute toward the productien of black vomit, which in itself, is salutary in effect and seems to be rather beneficial than otherwise, it being an effort of nature to rid itself of retained poisons and if it were not for the grave pathologic condition with which it is associated and of which it is more a symptom, would undoubtedly prove to be the turning point in many a case of yellow fever.

The irritation of the gastro-intestinal mucous membrane, its congestion and fatty degeneration and the degeneration of the walls of the smaller blood vessels and capillaries is an identical process to that which occurs in almost all of the parenchymatous structures of the body, such as the liver, kidneys, etc.

Persistent vomiting and threatened black vomit were treated very much alike. Iced drinks, such as milk, lime water, lemonade, etc., were given, large quantities of cracked ice swallowed by the patients and ice-bags applied to base of neck, throat and epigastrium; soda and peppermint were also used with advantage, and in persistent cases of vomiting or hiccough codein 0.016 to 0.032 gram hypodermatically, or cocain 0.032 to 0.65 gram by mouth, would give the patient a little much needed rest. Opiates and depressing agents were used with great caution.

During the stage of depression alcoholics were used with caution, iced champagne appearing to be the best form, but in many instances, for the control of vomiting, etc., iced seltzer water or any other carbonized drink answering just as well. During the initial stages unless specially indicated alcoholic stimulants were abstained from.

Black vomit was best treated by absolute rest of the stomach, nothing being given by the mouth, nourishment and fluids being given by rectum and medication hypodermatically.

Strychnia, digitalis, digitalin, brandy, etc., were all freely used in the treatment of the disease hypodermatically when indicated, as was atropin, in suitable doses, which was especially useful where there was a cold clammy skin or depressing perspiration associated with sub-normal temperature.

The very slow and irregular pulse of the stage of calm was aided by the above measures. So long as the pulse ran a moderately slow course all went well, as a rule, and, on the other hand, an increase in the frequency of the pulse with diminished force was generally observed near the fatal issue, with a fall in the temperature sometimes as low as 95 degrees F., when there was much free hemorrhage from the stomach or bowels. Owing to the impaired functions of the liver and intestines, the extravasated blood into the gastro-intestinal tract was very prone to putrefactive changes and was a source of much of the secondary fever. The danger arising from this source was in a measure obviated by the use of intestinal antiseptics, such as the sulpho-carbolate of soda, salol, etc.

I practiced infusion with a pint or more of hot saline solution in four cases, three of which were comatose from uremia and had had black vomit and hemorrhages from the bowels, and one of which was comatose from uremia alone and had lost no blood. This case was bled through the median cephalic vein, first to the extent of eight ounces and was then infused with twenty-four ounces of a hot saline solution. I thought that these procedures rather accelerated the fatal issue.

Hypodermoclysis was practiced in five cases, none of which recovered. About twelve ounces of properly prepared and sterilized solution was injected very slowly into the loose cellular subcutaneous tissues of the back and sides, every eight or twelve hours. As this is a less formidable procedure I prefer it to infusion. I think that I used these agents at too late a stage of the disease, all of the cases having had convulsions and being moribund.

Delirium and uremic convulsions were treated by attending to their causes. Sedatives such as the bromids and chloral were given cautiously when indicated. Quinin was not administered unless the malarial organisms were found in the blood, which occurred in about sixteen cases. Other complications such as pneumonia, diarrhea, etc., were treated as the condition of the patient permitted, but generally as little as possible.

The diet consisted of liquid food at regular intervals during the entire course of the disease, milk and lime water, beef tea, chicken tea and the like being our main articles of diet.

But these were given at such intervals that our treatment was practically a starvation one. There was a constant cry from the patient for food. After the stage of calm was safely passed the diet was cautiously increased.

Fifty-one postmortems were made, of which forty-five were from yellow fever and six were from other causes, in every instance confirming the diagnosis made by us. In the yellow fever cases the following postmortem conditions were generally found.

The pupils were generally widely dilated and the conjunctivæ and sclera jaundiced. The skin of the face and upper portion of the trunk was generally of a golden-yellow color; while that of the dependent portions presented a mottled purple and a yellow ecchymosed appearance due to postmortem hypostasis.

On section the blood was dark and fluid, becoming bright scarlet on exposure, whilst all the tissues were found bile-stained, even the brain substance.

Intense congestion of the blood vessels of the thoracic and abdominal viscera was observed.

The pericardium was intensely congested, especially about the base of the heart, as were the capillary vessels covering the aorta and other large vessels in the neighborhood. This conjestion was more marked than in any pathologic condition I have previously seen, and was not present in the six postmortems held on the cases not yellow fever.

The heart was found filled with dark fluid blood, and the muscle softer and paler than normal, due to a condition of acute fatty degeneration. The blood as has been observed by Jones and others, has its fibrin very much diminished.

The lungs presented extreme congestion of the dependent portions. Circumscribed hemorrhages ranging in size from that of a pin point to that of a pea and larger, were frequently found in all the organs.

The mucous membrane of the stomach was intensely congested, softened and eroded; often containing large quantities of black-vomit, where none had been vomited before death. This was of an alkalin reaction due to the presence of ammonia, resulting from the antemortem decomposition of urea. The presence of the ammonia according to the observations of the late Professor Jones was easily demonstrated by holding over the opened body a rod which had been moistened in hydrochloric acid forming white clouds of ammonium chlorid $NH_3 + HCl = NH_4 Cl$. Microscopically the black-vomit presented blood corpuscles, gastric epithelium, bacteria, etc.

The duodenum, as a general rule, presented the above conditions intensified. This condition, however, in the majority of cases extended only down to the opening of the common bile-duct, below which the congestion was not so well marked. The intestines were dark in color and distended with gas; frequently the mucous membrane was so congested as to present the appearance of being raw. They frequently contained large quantities of black altered and decomposed blood, showing the necessity for the use of intestinal antiseptics.

The liver was generally yellow, dead-leaf or boxwood in color, due to fatty degeneration, bloodless; in deaths occurring early in the disease the liver was found to be intensely congested and yellow. Where yellow fever was engrafted upon chronic malaria the characteristic lesions of both diseases were found.

The gall bladder was generally flaccid and empty, being over-distended in only one case, where an impacted gallstone was found. The gall bladder sometimes contained a clear, albuminous, mucoid liquid, free from bile, and in some cases was filled with dark grumous blood.

The spleen was generally slightly enlarged, the parenchyma being generally normal.

The kidneys were generally of a brownish yellow color, larger and softer than normal, loaded with fat and were generally intensely congested. The capsule was generally adherent due to former troubles, while the cortex was swollen and fattily degenerated. The fatty degeneration first and generally most prominently showing itself in a line close to the bases of the Malpighian pyramids, as this sign was first noticed by our pathologist, I think it may with all propriety be safely and properly called "Pothier's sign."

The kidneys presented all the evidences of an intense acute inflammation. Putrefactive changes as a rule set in early and progressed very rapidly, associated with rapid disintegration of the blood. Blood taken from the living subject also disintegrated rapidly.

Complete clinical histories and records, pathologic reports, postmortem reports of all autopsies, accompanied by results of microscopic observations, together with the preservation of the microscopic slides and bacteriologic preparations, will constitute one of the most valuable and complete series of reported cases of yellow fever ever made.

Upon the completion of this work it will be placed in the archives of the Charity Hospital, where it will be at the disposal of the medical profession.

In conclusion I would state that no material advance has been made in the treatment of yellow fever; that the clinical and pathologic observations, microscopic and otherwise, both on the blood and tissues, of such men as the late Prof. Joseph Jones have been but confirmed.

The only really new work done was in the examination of the blood for malarial organisms, Widal's re-action for typhoid and yellow fever (Sanarelli's bacilli), in these cases; blood counts were also frequently conducted.

No great changes were found either in the number or structure of the corpuscles. Blood counts and examinations for the malarial organism were always made immediately after obtaining the specimens, within fifteen minutes, while the "Widal's reactions" were made when convenient. The work in this line conducted by the pathologist of the hospital, Dr. O. L. Pothier, as yet not being in readiness to report upon. The bacteriologic work undertaken by the above mentioned gentleman, and Dr. Pothier, Dr. Mioton and myself, while not original in any but a few points, still is along a new line of intense and absorbing interest to the investigator and of vital importance to these affected by the ravages of yellow fever.

So far as I can gather from Drs. Archinard and Pothier, the two principal workers, and so far as my own observations extend the prospects for the substantiation of the claims of Sanarelli of Montevidio, are good.

The Isolation Hospital was open in all about two and a half months, closing about December 14, 1897, and during this entire time the health and spirits of the entire corps were of the best.

No case of yellow fever was traced to the hospital, in spite of the fact that three of the Sisters had not had it. The ambulance superintendent had never had it, and was frequently covered with black-vomit. Fourteen cases passed through the wards who did not have the disease, none of whom contracted it, and of the army of prisoners engaged in destroying the infected buildings and in general cleaning up, numbering in all considerably over a hundred persons, not one contracted the disease.

A TYPICAL CASE OF YELLOW FEVER ILLUSTRATING THE VALUE OF WIDAL'S REACTION WITH THE BACILLUS ICTEROIDES.

BY OTTO LERCH, A.M., M.D., Ph.D.
NEW ORLEANS, LA.

Frank, age 30 years, native of England, has resided in Louisiana during the past fifteen years. He is of florid, healthy complexion, weighs 160 pounds and has been employed in a Turkish bath establishment for several months, attending in the hot room and giving massage to the frequenters of the establishment. During the recent epidemic of yellow fever he has been employed as a nurse for patients stricken by the disease. During all this time and up to the 21st he has been in perfect health. On the 22d, at 8 P.M., he was seen by the writer and gave the following history: That on the day previous he was taken with a headache and general malaise, especially soreness in the limbs not severe enough to keep him from his daily occupation in the hot-room. He thought he had no fever on that day. On the morning he went from home to his work, a distance of about fifteen blocks, and though not feeling well, worked till the time he called the writer. He was stretched upon a cot, was very restless and complained of severe pain in the head, back, epigastrium and extremities. There was nausea and congestion of capillaries, especially of face; conjunctivæ were injected; tenderness upon pressure over epigastrium; tongue coated in the center; edges and tip of tongue red. He had urinated during the day and described the urine as being scanty and of high color. His intellect was clear; a slight chill had preceded the rise of temperature to 105; pulse 113; respiration 26. A hot foot-bath and a calomel purge 0.39 gram in 0.065 gram doses every hour, followed by a saline cathartic, were administered and the following powder given twice during the night: phenacetin 0.2, codein 0.02 and caffein 0.065 gram. The hot foot-bath, ice to the head and the above powder relieved him considerably, and on the morning of the 23d he returned to his home. At 8 A.M. his temperature was 102, pulse 80, pain over the epigastrium very severe and frequent vomiting. During the night he had taken iced seltzer water in small quantities at frequent intervals. This, however, though mixed with lime water, had not stopped the vomiting. He thought that it had lessened the nausea. The urine was scanty and contained about 3 per cent. of albumin and some casts of the uriniferous tubules. The vomit consisted almost solely of mucus tinged with bile. In the evening I found the temperature had risen to 103½, whereas the pulse had remained stationary. The vomiting had stopped, nausea lessened; he complained still of soreness, but not of pain except over the epigastrium. On the 24th, temperature 103½; pulse 80; the patient appears and feels much better than on the previous day; evening, pulse 80; temperature 102⅕; vomiting has stopped and he rests better. On the 25th, temperature 100; pulse 70; patient feels well, is hungry and wants to go to work; evening, temperature 101; pulse 70. After this date the patient was seen by a colleague who reported that on the 26th he found temperature and pulse normal and the patient feeling well, and he returned a few days later to his accustomed work.

On the morning of the 23d blood was taken with due antiseptic precautions from the tip of finger, and a few hours later examined under the microscope. It had almost the appearance of colored water, the red blood corpuscles being to a large extent dissolved. The Widal reaction with the bacillus icteroides of Sanarelli was then applied and gave the following results: In a dilution of one to ten arrest of motion of the bacilli and agglutination was complete within a few minutes, and in a dilution from one to forty the agglutination and arrest of motion of the bacilli took place within twenty minutes. The test was made with a culture obtained from Sanarelli, and the reaction was submitted to Drs. P. E. Archinard and B. S. Woodson.

The foregoing case shows several points of interest. It is a typical case, though occurring after the epidemic had subsided. From the onset of the disease we can observe the non-correlation of the lines of temperature and pulse, one of the characteristic features of yellow fever, its continuity to the fifth day with but a slight remission on the second day of the disease proves it a fever of one paroxysm, the maximum elevation of temperature is attained on the evening of the first day 105 degrees in the mouth below the tongue. On the morning of the second day the temperature registers 102, rising in the evening to 103½ degrees, and from this time shows a steady fall, till on the morning of the fifth day the temperature has reached normal. The pulse on the commencement of the attack was rapid, 113 and full, falling to 80 beats on the morning of the second day and remaining stationary the second and third days; its frequency falling to 70 on the fourth day. If we observe that on the second day a larger amount of albumin is found in the scanty urine, a symptom so constant in yellow fever that it is almost generally accepted as one of the pathognomonic features of the disease, and if we further note the congested face, pain in the epigastrium and characteristic vomit, headache and soreness in the extremities, the complete anorexia we can not doubt the diagnosis.

It seems strange that a man who has been almost daily and freely exposed to the cause of the fever during the epidemic, without being attacked, should succumb after further exposure to the cause had almost become an impossibility, the city having been practically free from the disease for several weeks. It seems that his system gradually becoming saturated with the cause of the fever had acquired a certain immunity, which it lost after a spree or some other weakening cause of which the patient does not give a history. That such an immunity can be acquired we have daily occasion to observe in this country where everybody is constantly exposed to the malarial organisms, and yet be subject to attacks of the disease only after a similar cause. More than this it is well known that men living in perfect health for years in a malarial country, suffer from malarial attacks when changing their abode to a country free from this disease, proving conclusively that they have carried the plasmodia in some form perhaps through a number of years without inconvenience. The demand made upon the system to adapt itself to new surroundings, to a new mode of life is often sufficient to cause malarial attacks.

Another point of interest in this case is, that the occupation of the patient in the Turkish bath, where he had to be a large portion of the twenty-four hours, in the hot room with a temperature of 160, was not sufficient to kill the bacilli, which according to Sanarelli and the recent observations of P. E. Archinard in collaboration of R. S. Woodson and J. J. Archinard, are the cause of the disease. Though the blood temperature is not raised, with each breath taken in the hot room, the heated air is brought in direct contact with the blood and the heat is immediately communicated to the tissues. If the Turkish bath can not be considered a prophylactic agent in yellow fever it may alone or in connection with the steam bath, serve as a prophylactic in other infectious diseases.

The blood, six hours after extraction presented almost the appearance of colored water.

Joseph Jones ("Treatise on Yellow Fever," p. 185) states: "The changes of the blood appear to be continuous from the time of the introduction of the poison to the fatal termination." (P. 186) "In some cases there is an almost entire disappearance of the fibrinous element," and (p. 188) "rapid dissolution of the colored corpuscles after the blood is abstracted from the body either during life or after death. The rapid alteration of the investing membrane of the colored blood corpuscles in the blood of yellow fever, after the abstraction of the blood from the vessels appears to be intimately related to, if not absolutely dependent upon, the physical and chemic action of the biliary and urinary constituents retained in the blood. During life the blood corpuscles in virtue perhaps of their vital endowments and of their relations to the oxygen received during respiration, resist the solvent action of the bile, urea and ammonia, but after the blood is abstracted and loses its vitality and is exposed in vessels these agents exert their characteristic action."

At the present day nearly all observers agree that the blood of yellow fever patients presents a normal appearance, yet others maintain that in some cases the blood shows a decided tendency to dissolution. This discrepancy of opinion may be due to the time of observation after extraction of the blood from the patient. I have no doubt that in this case the changes seen were postmortem, though I had no opportunity to verify this.

Sternberg ("Report on the Etiology and Prevention of Yellow Fever," p. 147) says that "the blood in yellow fever has been described by many observers as 'completely disorganized' as to its histologic elements. This is a mistake, as shown by the numerous micro-photographs made by the writer while at Havana in 1879, from the blood of cases near a fatal termination." The same author and others say that the prognosis in a case of yellow fever should be guarded. In the case under consideration the temperature on the first day rose to 105, and 3 per cent. of albumin was found in the urine on the second day. Yet the case goes on without any complication to recovery within five days, and soon thereafter the man returns to his usual occupation and has been attending to it since without interruption. Quoting from the above report we find in a series of cases in which a complete and careful record had been made by G. Sternberg that when the temperature rose to 105 and 106 out of thirty-six cases, twenty-two died and when the temperature rose to 104 and 105, out of eighty cases twenty-four died.

Though cases which appear mild at the outset may assume a grave character we see that in this instance the reverse was the case.

The prompt agglutination of Sanarelli's bacilli and their arrest of motion in the hanging drop culture contaminated with the blood of this patient may prove of the highest value in the future and allow an early recognition of the dread disease, permitting a quarantine when it is yet of value to limit the spread of the fever.

LUPUS VULGARIS—ACUTE ECZEMA—CHRONIC ECZEMA—PSORIASIS.

A Clinical Lecture to Members of the AMERICAN MEDICAL ASSOCIATION, delivered in the Medico-Chirurgical Hospital of Philadelphia, June, 1897.

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I have no fear of dwelling too much upon specialism because I find in numerous cases that the visible cutaneous affection is but symptomatic of some morbid functional or organic condition of the digestive organs, the blood, the kidneys, the genital apparatus or the nervous system. Consequently, in order to cure the disease of the skin I must apply the same diagnostic and therapeutic principles by which every general practitioner is guided. Dermatology is linked in the closest bonds to general medicine. This is a fact upon which I constantly insist.

LUPUS VULGARIS.

The first patient I introduce to you is a young farmer, 28 years of age, who entered this hospital a few days ago on account of an extensive and disfiguring eruption upon the face. The disease began fourteen years ago on the bridge of his nose and, as far as he can remember, in the form of scales. In the course of an indeterminate time these scales fell, there was some blood-stained fluid discharge and an indolent ulcer left. After a time larger and thicker scales formed upon this surface. The progress of the disease was attended by itching and pain. In the early course of the affection, during his boyhood, the nose was accidentally scratched by a piece of glass and this injury, he thinks, aggravated the disease, and caused it to spread with greater rapidity. Gradually the lesions extended from the nose to both cheeks and also along the nose to its tip. For the last eight years the diseased area has been of about the same dimensions as at present. The intensity, however, is not always the same. There are periods of exacerbation and improvement. The malady is generally less active in summer than in winter. There are other morbid foci upon the left cheek and chin. These began at about the same time as that upon the nose and have pursued a similar course.

At the present time the disease occupies the nose from root to tip, extending outward upon each cheek, forming some resemblance to the figure of a butterfly with outspread wings. Upon the left side a thin streak of the same character dips downward at a right angle from the tip of the wing to the corner of the mouth. Over the zygomatic process and malar bone of the right side is an oval patch of the same aspect, its long axis being in the vertical direction. Upon the right side of the chin, its center corresponding to a line dropped from the corner of the mouth, is another oval patch, the long axis of which is directed parallel to the lower border of the maxilla.

There are no other lesions upon the body than those enumerated. The patient's general health has been good until within the last few days, when he began to be troubled with pain in the lower limbs and debility. The difficulty seemed to be of a rheumatic character. Until this attack he had been able to do his farm work. He never had rheumatism before this time. The man's mother died of phthisis. He thinks that a brother also died of consumption. He does not know of any other case of skin disease in his family.

This case is of interest as regards the persistence, inveteracy, location and contour of the lesions. He has given us his history as far as he is able, but there is one important point which is omitted from his account. Upon examination I find around the borders of the lesions a number of small yellowish red papules. These vary somewhat in size, though none are large. They are moderately firm to the touch; I can distinguish that they originate in the corium.

The early period of life at which this affection began, its very chronic course, without much deterioration of general health, the intervals of improvement, and above all, the occurrence of spots of cicatrization exclude the hypothesis of epithelioma. Nor is syphilis likely to attack a country boy of 14 years. It is sadly true that children may become innocently infected if exposed to contamination and that now and then "tardy congenital syphilis," as it has been called, first manifests itself about the age of puberty. This case, however, does not correspond to the history of syphilis. A case of syphilis of fourteen years' standing would have given rise to much more extensive and destructive lesions than are here present. There would have been deeper ulceration and bone would have been involved.

The man is a sufferer from lupus vulgaris, which ordinarily commences in childhood, affects the face by preference, is characterized by spontaneous absorption of some papules or tubercles with ulceration of others and cicatrization in certain spots. Thus in a case of lupus carefully examined we may often witness the simultaneous existence of different stages. Here we may perceive stationary, or nearly stationary, papules and tubercles. Some of the lesions fade away and disappear, while others ulcerate. At the same time we may observe evidence of former ulceration in the form of scars. These peculiarities are distinctive of lupus.

Lupous ulcers are not usually very deep, but in some instances they may penetrate the subcutaneous tissue and even involve the bone, proving as malignant as carcinoma. In other cases, an old lupus has undergone transformation into carcinoma.

The edges of lupous ulcers are soft, the surface is red, smooth, and early bleeds. It often becomes covered with thin scales or crusts. The ulceration is at times attended or followed by abundant papillary outgrowths, this form being known as lupus verrucosus. The disease occasionally begins upon a mucous membrane.

The butterfly or saddle-back contour is much more frequent in lupus erythematosus than in lupus vulgaris, though I frequently observe it in the latter affection. The course of lupus erythematosus, however, is not evidenced by papules, tubercles and ulcers, and it is commonly surrounded by comedones and patulous sebaceous ducts. Erythematous lupus develops later in life than lupus vulgaris.

There has been much discussion of late years concerning the tuberculous origin of lupus. The prevalent opinion ascribes its causation to the bacillus tuberculosis; yet these are confessedly present in small numbers and I have often searched for them in vain. It is true that lupus occurs in a certain proportion of patients affected by pulmonary tuberculosis in those who, like the present individual, belong to tuberculous families or in persons who become subsequently attacked by consumption of the lungs. Such cases, however, are greatly in the minority. On the other hand, lupus does not resemble clinically other undoubted forms of tuberculosis of the skin, and most patients afflicted with lupus possess fair general health.

The successful treatment of lupus is not an easy task. It usually demands the utmost patience in both the subject and the physician. The hygienic surroundings should be of the best and we should aim to correct any constitutional disorder which may be present. I am no advocate of severe local methods as I have frequently seen them followed by aggravation of the malady. Scarification, cauterization and curettement are procedures which I have almost entirely abandoned. I much prefer to begin with milder applications combined with appropriate regimen and internal remedies. If these prove without avail we may then cautiously resort to more heroic measures. In this case I have ordered that the diseased surface be painted every third day with pure carbolic acid. This substance has the valuable properties of coagulating the albumin of the parts, sealing up the blood and absorbent vessels and stimulating repair. In addition to these applications the following ointment shall be kept constantly applied:

℞.	Hydrargyri chloridi mitis	gr. xv	97
	Creosoti	♏ x	62
	Bismuthi subnitratis	ʒj	39
	Unguenti zinci oxidi benzoati	℥j	31

M. fiat unguentum.

On account of the family history of the man he shall be placed upon an alterative course, consisting of 1 drachm (3.7 c.c.), gradually increasing to 2 drachms (7.4 c.c.) of syrup of the iodid of iron thrice daily, together with an equal quantity of cod liver oil.

ACUTE ECZEMA.

This man of 25 years of age, has been troubled for a week by a very extensive eruption. Commencing on the scalp it has spread to the face, neck, trunk and extremities until at the present time there is scarcely a portion of the body entirely free from the disease. The exanthem is attended by excessive itching, burning and smarting. The general health is said to be unaffected. The bowels are constipated. His appetite has not been at all impaired.

The rash exhibits different types upon different parts of the body. Primarily it consists of small vesicles, filled with a pearly white fluid and situated upon an erythematous base. After a day or two they rupture and discharge their contents, which dry into yellowish crusts of greater or less size and thickness, according to the number of vesicles which have aggregated before rupture. Upon the back of the neck the crusts are particularly large, thick and numerous.

This can be nothing else than acute eczema of the vesicular type. Of this phase of the malady it is, indeed, an apt example. Closely grouped small vesicles on an erythematous base with heat, swelling, burning, tingling and itching signify eczema. The erythema, heat and swelling might be suggestive of dermatitis, but we have here no history of direct injury to the skin. Dermatitis herpetiformis is rare; the patches of erythema are of a dark red or purplish color, and vesicles vary greatly in size, while bullæ and pustules are often present. Herpetic vesicles do not rupture. Those of herpes zoster follow the course of a nerve and are often accompanied by sharp pain. In pemphigus we observe large bullæ or blebs.

Though vesiculation is the prominent characteristic of one variety of eczema, yet many cases run their course almost or quite free from this manifestation and require to be classed as erythematous, papular or pustular eczema according to their predominating lesions.

Acute vesicular eczema may be accompanied by constitutional symptoms so severe as to cause us to suspect the development of some eruptive fever. Such symptoms have been absent in this case notwithstanding the extensive surface involved. There have been no chills, fever, headache, backache, anorexia or nausea. The tongue is coated however, and the bowels constipated. As there has been no source of external irritation the disease in this instance is, in all probability, to be ascribed to imperfect digestion. This is a very common cause of eczema especially when, as often happens, the patient has a susceptible skin. Certain persons are predisposed to eczema as others to catarrh of mucous membranes; eczema has been termed catarrh of the skin, as affecting chiefly the mucous layer. Gastro-intestinal catarrh may be reflected upon the skin as acute or chronic eczema.

In treating such a case as this, therefore, it is important to avail ourselves first of the eliminative function of the bowel by administering a brisk purge. This should be followed by remedies which will improve the morbid condition of the alimentary tract and strengthen the digestive power.

Coincidently with such internal treatment we should combine emollient applications to the skin. Stimulating substances are inappropiate for topical use in acute eczema. They serve only to aggravate the disorder. We should choose the milder preparations, as those of lead, zinc, bismuth, magnesium, boric acid, diluted carbolic acid, a bland oil, etc. Remedies of this kind may be applied in the form of lotions, ointments or dusting powders according to the circumstances of the case. When the initial severity of the disease has subsided, if it shows, as it often does, a tendency to linger in a subacute or chronic form, we may begin cautiously to increase the strength of our applications or adopt others of a more decidedly stimulating character.

To revert to the patient I shall begin the treatment by the administration of:

℞.	Antim. et potass. tartratis	gr. ss	032
	Massæ hydrargyri	gr. x	65
	Pulv. jalapæ	gr. x	65
	Pulv. cinnamomi	gr. j	065

M. ft. chart.

This combination will have a beneficial influence upon the secretions of the alimentary tract in addition to unloading the bowels. After he has been freely purged he shall be placed upon:

℞.	Acidi hydrochlorici diluti	ʒv	1848
	Pepsini pur	ʒiij	117
	Glycerini	f℥j	2957
	Aquæ	q.s. ad ℥iv	11828

M. ft. sol. Sig. Teaspoonful in water after each meal.

If the bowels should show any tendency to become constipated again the patient shall be given every night or two a capsule containing 1 grain (0.065 gram) each of blue mass, powdered jalap and compound extract of colocynth together with 1-20 minim (0.003 c.c.) of oil of peppermint.

On account of the almost universal distribution of the eruption the patient shall be given a moderately warm bath every day while the inflammatory action is severe. This soothes the skin, washes away the products of disease, and allays the itching. Rain water is beneficial, but the addition of an alkali and emollient enhances its efficacy. About 4 ounces of sodium bicarbonate or borate and 3 pounds of starch added to the water makes as a rule, a soothing, grateful bath in such an extensive violent case as the present. It must be admitted, however, that there are cases which receive no benefit from general baths. Injudiciously or immoderately practiced immersion may aggravate the disease. We must be guided in each individual case by the effects.

After the bath the surface is gently mopped dry when it may be anointed with a mild preparation, such as the following:

℞. Calaminæ . . . . ʒi 3|9
Bismuthi subnitratis . . . . ʒij 7|8
Unguenti cucurbitæ . . . .
Unguenti aquæ rosæ . . . . ää ℥ss 15|6

Finally over the ointment a bland dusting powder, such as starch, arrow-root, lycopodium, talc or magnesium carbonate may be freely sprinkled. When so much of the surface is involved an ointment is usually preferrable in practice to a lotion. Except in the extremest cases a patient can scarcely be expected to sit at home in light undress and continually mop the surface with a wash.

CHRONIC ECZEMA.

Some of the results of a continuance of eczema are illustrated in our next patient, a man of 40, who has been afflicted with the disease for fourteen months. The predominant lesions are of the class known as secondary. Upon the flexor surfaces of both forearms, in the popliteal region of each side, the outer surface of each leg and around the ankles as well as upon the buttocks are spots and patches of infiltration, varying in size, those upon the forearms and legs being quite large. The skin is thickened, rough, hard, dry and inelastic. It is a deep red color in these situations. The eruption is accompanied by persistent itching. The larger patches are more or less plentifully covered with thin, grayish scales. Tormented by the itching the man has in numerous places torn the skin with his nails and blood crusts have been the result. At other sites the inelastic integument has given way to muscular traction forming painful fissures. Some of these are deep and bleed easily. To the troublesome itching the fissures add an element of actual pain. The totality constitutes to the patient a very distressing case.

The eczema in this instance, is certainly due to digestive derangement. The man has marked symptoms of gastric and intestinal dyspepsia with torpidity of liver and lack of assimilation. There is much flatulence, a coated tongue with fetid breath and irregular action of the bowels. In brief there is present a condition of auto-infection by imperfectly elaborated alimentary material. It will be necessary to unload his intestinal canal, stimulate the digestive functions and regulate his diet. He shall be allowed a sufficiency of nitrogenous food of the most digestible kinds, such as eggs, roast beef or mutton and plenty of milk with once a day some well cooked vegetables. Without attention by proper diet and remedies we should seek in vain to cure this case by means of external remedies.

I shall order first the capsule of which I have already spoken.

℞ Massæ hydrargyri.
Pulveris jalapæ.
Extract. colocynthidis comp . . . . . ää gr. j |065
Ol. menth. pip. . . . . m. $\frac{1}{20}$ |003
M. et ft. capsula No. j. Mitte tales No. xx.
Sig.—One capsule to be taken every night at bedtime.

In order to improve his digestion he shall be given a mixture of hydrochloric acid and pepsin, composed as follows:

℞ Pepsinæ glycerini . . . . ℥j 31|2
Acidi hydrochlorici dil. . . . . m. ccccc 30|8
M. Sig.—Two teaspoonfuls after each meal.

Locally there shall be applied:

℞ Acidi salicylici . . . . gr. xv |97
Acidi carbolici. . . . . m. x |62
Sulphuris sublimati . . . . ʒ ss 1|95
Unguenti zinci oxidi benzoati. . . . . ℥ j 31|2
M. ft. ungt.

PSORIASIS.

We have also two patients to form a contrast to chronic eczema, and which require one to enumerate the points of differential diagnosis. The first of these cases, a lad of 18, has been subject for four years to an eruption upon the scalp, face, back and limbs. Upon the hairless parts the characteristics of the lesions can be readily discerned. These consist of patches covered with silvery scales. The disease began as small, dry papules, which by their growth and coalescence became patches surmounted by the scales described. Some of these primary lesions are to be observed now upon the forearms. The patient himself points out small, discrete papules, which experience has taught him to recognize at the earliest manifestation of the disease. They are of rather a bright hue. The disease began upon the scalp. The boy first noticed an unwonted dryness of the scalp. After a time he could feel pimples upon the head, and in the course of a year scales were observed. Subsequently the eruption developed upon the side of the trunk, knees and limbs. Individual papules are at first always separated by a space of intervening healthy skin. A little scaling is seen upon their tops almost from the very first.

Large patches exist upon the breast, back, thighs, legs and arms. They are prominent upon the back of the elbows and just below the knees. The patches are largest upon the thighs and abdomen. They are thickened, red and scaly. Primary lesions are now in process of evolution upon the hands. Until recently they had never appeared in this situation.

There is not much itching. If he becomes overheated the papules and patches may itch. At such times he is apt to tear off scales in scratching, and then there is a little bleeding.

There is a distinct rheumatic history in this case. A year ago the youth suffered severely from rheumatic pains, and has ever since been subject to sharp twinges in the shoulders, loins, arms and legs. The pains are particularly sharp prior to the development of fresh lesions. He has also some dyspeptic symptoms.

The next patient is a man, 37 years of age, who for two years has been troubled by a rash presenting the same aspect as that of the preceding case. In this patient the disease began behind the elbows, and scaly patches are scattered upon various parts of the body There is no occasion to describe them in detail. In this individual also, there is clinical evidence of the rheumatic dyscrasia. He describes himself as constantly feeling weary, having a weak back, desiring to lie abed in the morning. He formerly possessed average energy, and is not willing to be accused merely of laziness. Nor do I regard his symptoms as due to laziness, but as the sluggishness denotive of the hepatic torpor so frequently the concomitant or the origin of subacute rheumatic manifestations.

Both these cases are stamped with the same seal. The impress is characteristic and almost pathognomonic of psoriasis. When once known this disease can generally be recognized with ease and certainty. We can scarcely mistake as regards psoriasis, but chronic cases of eczema, attended by desquamation, may bear a certain resemblance to it and engender doubt. The course of the latter affection, however, is altogether different from that of eczema. In psoriasis we have a history of individual scaling papules separated by sound skin and in almost any case the physician may himself demonstrate the existence of such primary lesions in addition to the scale-covered patches. The papules are present in both cases. In papular eczema there is no such isolation of the lesions, which moreover very frequently arise from a reddened base. Eczema has a predilection for the flexures of joints; psoriasis usually begins on parts where the epidermis is thickest. The scales of eczema are thin and scanty; those of psoriasis are thick, firm and generally of silvery aspect.

Psoriasis is fundamentally a hypertrophic disease, attended by inflammatory changes, enlargement of the papillæ of the skin and hyperplasia of the cells of the stratum mucosum. The patches in some cases assume huge dimensions, and in other instances very fantastic outlines. It is essentially a stubborn affection. The treatment and prognosis of each case depends upon its cause. The origin may be in morbid conditions of the blood, nervous system and viscera. In a large proportion of cases it is due, as in the cases before you, to the influence of rheumatism. Gout also plays a large part in its production. It follows, therefore, that successful treatment depends upon the general principles of internal medicine, and that local therapy must in many instances be of minor importance. Topical measures alone will seldom cure the malady. Quite often I order no local applications whatever, and depend entirely upon systemic medication. This is the course which I shall pursue in the case of the second patient, the older man. I shall prescribe:

℞	Sulphuri sublimati	gr. iv	26
	Potassii bitartratis	gr. j	065

M. et ft. capsula No. j. Mitte tales No. xxx.
Sig.—From four to six capsules to be taken *per diem*.

Small doses of sulphur are of decided value in subacute rheumatism. In these quantities it acts by absorption, stimulates the liver, the glands of the bowel and of the skin. As a normal constituent of albumin and of taurocholic acid the administration of sulphur is a logical procedure in disorder of the hepatic and cutaneous secretions and in perverted nutrition of the epithelial elements of the skin, the cuticle, hair and nails. Furthermore, sulphur is extremely beneficial in subacute muscular rheumatism of the type exhibited by the patient.

In the case of the lad we find a more active manifestation of rheumatism. The potassium iodid will here exert a more speedy effect. I shall direct him to have 10 grains (0.65 c.c.) of that salt four times daily, increasing to 15 (0.97 c.c.) and then to 20 grains (1.3 c c.) according to the manner in which it is tolerated. It shall be given in the compound syrup of sarsaparilla as a suitable adjuvant. For the youth I will order the following external application:

℞	Unguenti hydrargyri nitratis.	ʒ ss	1 95
	Acidi salicylici	ʒ ss	1 95
	Unguenti zinci oxidi benzoati	ʒ j	3 12

M. ft. unguent.

In such cases frequent steam baths are useful. Many practitioners accord a high value to chrysarobin as a topical remedy in psoriasis. I do not often employ this agent for the reasons already intimated. Moreover it is very irritant, and it stains the skin, hair, nails and underwear.

THE SCHOOL TRAINING OF YOUTH.

Presented to the Section on Physiology and Dietetics, at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

BY CHARLES E. WINSLOW, M.D.
LOS ANGELES, CAL.

The two essential parts of a human being are mind and body, and so constituted are they that each is of the utmost importance to the other. They are bound together by ties that render them inseparable through life. A suffering body depresses the mind; a harassed mind wearies the body. That which strengthens the human organism, stimulates the intellect to action. Raptures of the mind thrill the body. This being true, how important that from the first days of life, the intellectual and physical should grow and develop side by side.

That laws of health obeyed increase and add pleasure to life, should be known by every man, woman and child in our land. Health with a fair mind is worth more than a brilliant intellect in a feeble constitution.

The broadening light of knowledge reveals truths in cause and effect of hygienic principles before unknown. These bear added responsibilities, opening up a field of labor prepared for the growth of wise thought and action. We are realizing more and more the need of staunch and energetic men who can stand against the push and energy of the day, assert and maintain their beliefs and not break down in health as they are ready to grasp the great promises of the future.

A community's healthfulness greatly aids the progress of business. The commercial interests of the nation demand the improvement and protection of human life. To promote the future prosperity of our nation, and to elevate the physical standard of the human race, we must build up the bone and sinew of the country; therefore the science of hygiene must be understood. The grandest results will be attained only when the people come to a full comprehension of the value of the laws of health. To bring the greatest influence to bear upon the education of the masses, we must begin at the foundation and enlighten the people through the growing youth of the land. We must instil into their minds a knowledge of the fundamental truths of hygiene, and increase the powers of the intellect and body, thus making a better and stronger race of men and women.

The future history of our nation will be made by the children of the present. What we do for the child of today is something done for the adult of tomorrow. Every healthy child indicates a healthy man or woman. Over twenty-five millions of youth in the United States—what a leverage for good! These minds filled with right ideas in regard to health, would be an unmeasured power whose expanding influence would be felt in ages to come.

Our schools are the corner stone of the nation; to them with their four hundred thousand teachers must we look for the forces that are to save the strength of its people. There should the pupils be taught the laws of health by word and deed. The members of the school board should be men of intelligence, interested in the children's welfare and impressed with the fact that the lives and health of fourteen millions of school children are of vital importance to the nation. The selection of sites, building and furnishing of school houses and engaging of teachers should not be controlled by money consideration.

The rights of our school children should be recognized in all ways that will protect and develop the mental, moral and physical health. The play grounds should be large and free from dampness; the buildings should be examples of scientific sanitation; the rooms warm and comfortable, light and airy, free from draughts and poisonous gases, furnishing two hundred cubic feet of pure air to each pupil, and everything should be clean and sweet. The walls of the room should be slightly tinted blue or green that they may be restful to the eye, and there should be the best of blackboards. Care should be taken to have desks so made and placed that they will tend to straighten, instead of deforming the child. The microbe-breeding slate should be discarded and paper especially prepared used in its place. The pencils should be disinfected daily. The school books made of suitable paper, with the printing plain and legible, should be owned and furnished by the district, thus preventing the carrying of books back and forth from families infected with disease, and also the sale of second-hand school books, coming, as they often do, from houses where disease has run riot. The use should be forbidden of the open bucket, in which, through the medium of the drinking cup, the water becomes contaminated with spittle from the mouths of disease infected children. There should be provided a place where the clothing can be warmed and dried. Children from homes saturated with germs of disease should not be allowed to endanger the lives of those from homes clean and pure.

A competent expert in the science of hygiene should carefully inspect the school and its surroundings, and thoroughly disinfect the building and its contents periodically. He should examine teachers, pupils and employes for contagious diseases, test the eyes of the pupils, see that all members of the school have been properly vaccinated, examine into suspected cases of sickness and infectious disease in families whose children attend the school. He should advise with regard to the amount of work pupils are physically able to undertake and also the kind of exercise needed by different children. He should report any needed changes in the buildings, and should lecture to the teachers and older scholars on the principles of hygiene.

The educators of our youth should be selected with the greatest care, for upon them rests a great responsibility; they are at the head of the institutions that indicate a nation's civilization; they are the developers of our citizens. Teachers are born, not made. They should have sound minds and bodies, should love their work and be in sympathetic touch with their pupils, studying their nature. They should have a facility to impart knowledge and at all times bear in mind that there is to be a moral as well as mental and physical growth. They should wisely encourage and interest the child in the lessons to be learned, teaching him to observe and think for himself, remembering that education is in a great measure the development of the faculties rather than the imparting of knowledge. They should teach the importance of self-control, and should be able to infuse joy and gladness into the heart of the child. They should understand physiology and hygiene and learn that there are conditions of the nervous system that must be wisely handled, that there are functions of girlhood that can not be ignored, remembering that the excitement of school life often hides from the teachers the pupil's weakness. The teacher should so instil the distinction between right and wrong into the mind of the youth that there will crystallize into the life all that is best of the moral, intellectual and physical world.

Education is development of power and a storing up of that which will give strength of character, penetration of mind and endurance of body. Childhood is the molding time of life, where weakness of intellect and organism is to be overcome; when deformities of mind and body are to be corrected.

The science that aims to give better health, longer life and greater happiness to man should be paramount to all others; it is of vastly more importance to the youth to know what will prevent misery now, than to know that centuries ago Alexander sorrowed because there were no more worlds to conquer.

Make the study attractive to the student, stimulating the mind to further investigation. No child is too young to learn. Sow the seeds in the kindergarten. Let the truths be gathered all along the pathway of knowledge. Teach the children that cleanliness means health and strength. Teach them that filth and dirt infect the air we breathe, the food we eat and the water we drink, and that it breeds pestilence and transmits disease. Children should be taught not only the truths of the science of hygiene, but also the practical use of the knowledge obtained. The mind and the body should be trained to perform all their functions and live as nature intended.

No false ideas of modesty should prevent the teaching of the evil effects of youthful vices, and the danger of bringing wretched manhood and misery to those who sin through ignorance. These things would better be learned in school from wise teachers than in the street from evil-minded youths.

The older young woman should be taught the importance of motherhood and all it implies. The appalling darkness that surrounds this subject and the ignorance shown by most young women at this period of their lives is an outrage against humanity.

At no time of life is the mental, moral and physical growth so rapid as in childhood. During that period most children are in school.

The first consideration of the teacher should be "how to keep the growing child well," aiming to improve the moral and physical, as well as the mental condition.

The high pressure system of education with its daily grind of study, followed by the severe strain of examinations, exhausts the mind, causes loss of appetite, interferes with sleep, making the child listless, and is responsible for a large share of the increasing nervous troubles. There are children who will bear crowding, but the majority, with their soft pliant brains, will not stand the strain. The per cent. of myopic cases increase as the pupils advance from grade to grade. This is due largely to close application with poor light, bad printing and defective blackboards.

Forming bones, growing muscles, developing nervous system and the constantly changing conditions of childhood need exercise.

Mind and body should be systematically trained, together growing in strength and power. Forcing either at the expense of the other is dangerous. To cram the brain of a poor, sickly body, without the vital force to use the knowledge, is to make an unbalanced human being. Cultivate good, active minds supported by the brawn and sinew of sound bodies, and they will wield an influence on this swiftly moving civilization.

Muscular tissue will not improve without muscular action. Exercise develops and tones up muscle and nerve force, thus increasing the heart's action, causing the lungs to expand and send richer blood to the brain, which brings clearness of thought and a more practical turn of mind. Manual labor and exercise should be wisely interspersed with study. Physical culture will give to our boys and girls more grace and finer physiques; the shuffling walk will be less often seen, the bent bodies will become more erect and awkwardness will disappear. Special exercises should be given to strengthen the weakest parts, fun and recreation forming part of the exercise. Motion is often rest to a child. Dr. Wey found that twelve of the dullest boys in school, after a course of physical training, without their knowing why it was done, increased their rank in their classes from 45 to 74 per cent.; their minds becoming more active, facial expression more intellectual and eyes brighter.

The children of civilized nations spend too much time in-doors. Long school hours should be avoided. Make the hours of study accord with the age of the pupil, who should rest each half hour. The French primary schools with their three grades, the first of three and a half hours, the second of four and one-half hours, and the third of five and one-half hours for mental work and two hours for bodily exercise, have improved the mental and physical condition of their pupils. In the half time schools of England, the children working half a day with three hours of study, pass the fourth grade in nine and one-half years, while the full time children studying six hours a day do not show the same aptness, and are ten and one-half years accomplishing the same result.

The studies should be made interesting, cheerfulness being encouraged. Forced stillness in a school room is painful. It shows too rigid a discipline, is wearing on the pupil and tends to suppression of the spirits that are needed to make a boy or girl an energetic man or woman.

All children have not equal ability to gain knowledge, and different organisms will not endure the same amount of work.

Rigid rules can not be enforced with safety; growing youth has peculiarities that can not be bound by human laws. The calls of nature must be attended to; because children make it a pretext to go out of doors, teachers are not relieved from the criminal responsibility for the destroyed health of a child The strain that comes to the young girl rapidly developing into womanhood is enormous, and a wise judgment should be used in meeting the dangers to her moral, mental and physical life.

The brightest pupils in school do not always achieve the grandest success in life. Machine work will not make capable men and women; the practical should be woven into the web and woof of children's lives, and their reasoning powers developed. Thoughtful meditation is worth more than impulsiveness.

Crowded education without due regard to the laws of health is responsible for the alarmingly increasing defects of childhood. The tendency to heredity, defective eyesight and hearing, pulmonary troubles and deformities, disordered digestion and shattered nervous systems threatens us as a nation.

Education should so improve the mental and physical condition of the child, that he will rise superior to his inherited tendencies; then will each successive generation grow stronger morally, mentally and physically.

In this age of excessive activity with its wonderful progress in trade, art and science, taxing brains to their uttermost, comes weariness and failure before life's work is fully completed. Education calls for the deepest search for treasures of science, which will bring to the surface grand results in a moral, intellectual and physical manhood, better prepared for life's work, thus enabling him to grasp great possibilities, and make them subservient to his will.

Civilization's light has lessened the shadows of ignorance and we begin to realize that influences are being generated now that will tend toward good or evil in the ages to come. Increased knowledge shows us the way to improve our schools, tells us what is needed to better protect and make sound in mind and body our youth, but back of this must be a power to make and enforce laws of health.

State and government must be the power, with agents systematically carrying on the work, and controlled and guided by a secretary of health at Washington.

Here on the edge of the century let us make ready for the future and send the rays of a brighter civilization into the next, by an army of perfected men and women whose exalted characters, brilliancy of intellect and physical power will make our nation the peer of all others.

Bradbury Building.

SPASMODIC CLOSURE OF THE GLOTTIS IN THE ADULT.

Presented to the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

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Spasmodic occlusion of the larynx in the adult is usually of the nature of a reflex and is but a symptom of a nerve lesion more remote The remote causes are usually those that produce paralysis of the abductor muscles, notably, the lateral crico-arytenoids and those that produce spasm of the adductor muscles, notably the inter-arytenoids. A differentiation of these causes will be essential to the proper treatment of the cases when presenting.

In the remote causes proper has been enumerated spasm of the adductor muscles. This spasm is usually found in such nervous diseases as chorea and hysteria.

The spasm may always be relieved by temporary anesthesia. It is usually not severe nor of long duration. As a rule it is relieved before loss of consciousness supervenes, the exhaustion caused by the spasm relaxing the spasm. It is of the nature of a nervous cough and is to be treated as such.

It is with closure of the glottis by paralysis of the abductors that this paper has principally to deal. There are two forms, one seen in such diseases as epilepsy, and the other in such diseases as ataxia. In the so-called laryngeal vertigo, laryngeal epilepsy, there seems to be no paralysis of the abductors except during the dyspnea. These attacks are sudden and transient. There is nearly always previous discharge of frothy mucus without premonition as is usual in ordinary epilepsy. The patient will be seized with a sudden violent coughing that amounts to strangling. He will grasp a chair or like object if convenient, and in a few seconds fall, usually upon the back, and entirely lose consciousness. The attack will last but a few seconds. The patient will regain his feet and feel perfectly well, no pain or unpleasant feeling of any kind being present. Indeed, the patient may express the idea that the remembrance of the attack is pleasurable rather than otherwise. The loss of consciousness seems to resemble that of carbonic anesthesia from nitrous oxid, etc.

About thirty cases of this form of closure of the glottis have been reported in literature with sufficient care to warrant proper classification. They are as follows: Charcot (*Comptes-rendus de la Société de Biologie*, p. 336, Paris, 1876; *Le Progrès Méd.*, 1879, xvii, p. 317), Gasquet (*Practitioner*, August, 1819), Krishaber (*Ann. des Mal. de l'Oreille et du Larynx*, 1882, p. 182), Grey (*Amer. Jour. Neurol. and Psych.*, November, 1882), Lefferts (*Arch. Laryngology*, vol. iii, p. 165, New York, 1883), McBride (*Edinburgh Med. Jour.*, March 1884), Russell (*Birmingham Med. Review*, August, 1884), Massei (*Giorn. Internat. delle Sci. Med.*, anno vi), Hermes (*Journ. de Méd. de Paris*, 1887, p. 936), Knight (*Transactions Amer. Laryng. Asso.*, 1886, p. 34), Gleitsmann (*Med. Monatschr.*, i, p. 510), Dauvin (*Journ. de Méd. de Paris*, Aug. 17, 1887), Lennox Browne ("Diseases of Nose and Throat," 3d ed., p. 526), Armstrong (*Med. News*, June 8, 1889), Adler (*New York Med. Jour.*, Jan. 30, 1892, p. 128), Weill (*La Provence Médicale*, Dec. 3, 1887), Fereol (*Progrès Médicale*, 1879, No. 17, p. 319), Phillips (*Med. News*, Philadelphia, March 19, 1892).

Much discord exists as to the nature of this form of laryngeal spasm, but in the opinion of the writer the affection is of the nature of petit mal. Regular paralysis of the abductors is more common in such affections as ataxia, and the attacks differ from those of laryngeal vertigo in that the patient, though he may fall, does not lose consciousness. They differ also in being less sudden and less transient, having less frothy mucus exuded, having often more premonitory symptoms; but the main and principal difference is that there is paralysis or paresis of the abductors at other times than in the periods of dyspnea. There is, indeed, paresis of a greater or less degree almost constantly.

In the case that I record at the end of this paper, the first attack was characterized by loss of consciousness, but in all subsequent attacks, occurring throughout several years, the patient though greatly distressed knew perfectly well all that transpired. He was, indeed, more fully cognizant of the condition of affairs than was consistent with comfort.

This form of closure of the glottis is to be carefully studied, since it is often the one observable precursor of ataxia and may appear long before any other symptoms of that dreadful disease make their appearance. Charcot, I believe was the first to mention it, though Fereol was the first to describe it fully and to trace its relation to ataxia. He gave it a most interesting and graphic description. Kussmaul and others have further developed the subject. Their researches show that when laryngeal paralysis is of central origin, it is most frequently found accompanying disease of the medulla oblongata and of the pons, as in bulbar paralysis, in multiple or disseminated cerebro-spinal sclerosis, in locomotor ataxia and in the general paralysis of the insane. In the case whose history I give below the disease occurred in locomotor ataxia of rheumatic origin.

Case.—On Jan. 5, 1894, F. M., English, aged about 35 years (occupation, proprietor of a logging camp) was brought to my office. He was of large, robust habit, florid complexion; had been drinking, and I thought at first that he was tipsy. He was led staggering and strangling into the office, his eyes staring, face livid and cyanotic, tongue out, presenting a most distressing and anxious appearance. I gave him a few whiffs of chloroform and sprayed his throat with cocain, and got a good view of the larynx. Vocal cords highly hyperemic, as was the mucous membrane throughout the nose and throat. At rest, the vocal cords were almost parallel and tolerably close together—voice not impaired. In inspiration the vocal cords pitched down, valve-like. Later there was audible inspiratory sound, especially in an inspiration taken after the pronunciation of a somewhat lengthened sentence. In expiration the vocal cords were close together and the false cords approached. There was hypertrophy of the lingual tonsil, thickening in the region of the pharyngeal tonsil, hypertrophied follicles on the posterior wall of the pharynx, edema and elongation of the uvula, edema of the right septum posteriorly, deviation of the right and left septum and septal spurs, hypertrophy of mucous membrane on the right and left lower turbinates. Among his general symptoms were constipation and hemorrhoids. His gait was unsteady, his feet being placed wide apart. He reeled while standing with his eyes closed. There was cutaneous anesthesia on the sides of the chest and on the lower extremities. The skin was not sensitive to the pain of pricking, but very sensitive to that of heat and cold. Patient complained that cold was painful to him. Knee jerk was absent; tendon reflex was absent.

Vision, right and left, $^{15}/_{20}$, unimproved; requires a + 4 D. to enable him to read Jaeger No. 1 at fourteen inches. The range of accommodation was two inches. There was exophoria for a distance of two and one half degrees when looking straight forward, greater when looking to either side, diplopia when looking to the right or left of center, at which time patient complains of being dizzy.

History.—Twelve or fifteen years ago had a severe attack of rheumatism through shoulders and chest, dull soreness through muscles of chest and shoulders and for years after could not comb his hair with comfort, could not get arm up, the touch of the clothes was painful, rheumatism confined principally to the chest.

About five years ago, while engaged in the lumber business he had attacks of dizziness, especially after lifting or stooping, head would get dizzy and glimmer: had sick headache and dyspepsia, thought it was biliousness; knees would get weak and painful, especially after walking skids very much; would have sick headache every week and would end in emesis. Has not had this bilious sick headache for two years, but occasionally vomits after coughing awhile.

Four or five years ago the skin became numb: "If you would pinch it it would not hurt." It was then all around the chest. It is so now. The skin is very sensitive to heat or cold, can not take a cold water bath.

About five years ago the strangling cough attacked him. The spasm would last fifteen or twenty minutes. There would be a tickling in the throat as though a bread crumb were there, would hawk and try to get it out, then would cough and strangle, did not lose consciousness in these attacks nor fall, neither was there much expectoration. What he did spit up was a sort of white foamy phlegm. At first the attacks would last from ten to fifteen minutes, "seemed to be caused by the drawing of the breath." Sometimes the patient would hold his breath to keep from having the pains.

A year or two ago had twitching of the eyelids on the right side. At that time the numb skin on the trunk felt creepy, especially when the clothes would touch it, and the patient felt as though walking on sand all the time.

A year ago last fall his eye trouble became worse—eyes saw double, and this double vision lasted for about two or three weeks, could hardly see across the house, could see double each way, to the right and left; would not see double when looking straight forward. After looking to the right or left it would take a little while to get the eyes pointed straight forward again.

March, 1896.—No heterophoria. V. D. $= {}^{20}/_{30}$; with $+ .50$ C. axis 90° $= {}^{20}/_{20}$. V. L. $= {}^{20}/_{40}$; with $+ .50$ C. axis 90° $= {}^{20}/_{30}$, to which was added $+ 3.50$ for near vision. A test with the perimeter shows a slight narrowing of the field for red and a central scotoma in field of left eye. Patient no longer gets dizzy, except in bed at night, when he is awakened by a great noise in the head, and will be dizzy until he can assume a new position. The glottis does not completely close in spasm, though he occasionally has a tickling spasmodic cough of short duration.

December, 1896.—Does not strangle, and the cough is slight and controllable. Vocal cords during phonation are parallel. When getting his breath after having spoken a few words his inhalations are audible. Mucous membrane of the throat is pale. Vocal cords during phonation are not steady. The left vocal cord is in the median line and remains there during the use and non-use of the voice. During phonation the right vocal cord will come up into position parallel with the left, and then by a series of unsteady movements will go away from its partner. During inhalation the left cord remains in the median line and is sucked downward like a valve, while the right vocal cord is curved outward, being somewhat sickle-shaped, and is valve-like but not depressed as much as the left.

May 11, 1897.—The patient has had but one attack of strangling in several months, no dizziness, no pains, no difficulty in micturition or defecation, no hemorrhoids. The field of vision remains about the same. The scotoma in the right eye is not now demonstrable, and that in the left eye is much smaller, being but a mere line extending from the point of fixation half way across the nasal portion of the field.

SALIVARY CALCULI.

Presented to the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

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Salivary calculi are, as a rule, easily recognized, although they are not of frequent occurrence. They are most frequently located near the buccal end of Wharton's or Steno's duct, and often have a definite outline and shape, rendering their detection by palpation usually easy. There are, however, a number of cases recorded in which their discovery was made by mere chance. Such an instance occurred in my practice. In two of my cases the diagnosis was easily made.

It appears that the growth and formation of salivary calculi begin years before their detection, and in this respect their character is quite in contrast to the stones found imbedded in the nasal cavities, which latter reach a large size after sometimes a growth of only a few months. The secretory function of Steno's or Wharton's duct and of the nasal cavity proper are not only different, but the foreign bodies found there are of different sizes. Sometimes these ducts contain large stones, without in any way producing symptoms, or in any sense annoying the patient. Such an instance is the following case:

Case 1.—Mr. A. F., 23 years of age, for the last six years a professional clarionetist, came to me last winter, in the height of his season, complaining of a cold, contracted two weeks before, and in consequence of this an abscess had formed, as he believed, under the tongue. On examination I fonnd a swelling about the size of a hen's egg in the left sublingual region. No hard substance could be felt at all. Believing that I was dealing with a ranula, I made a long incision through the buccal mucosa. A mass of fetid pus escaped, and, to my surprise, the end of a stone, oblong in shape, appeared in the opening. It was readily extracted. It undoubtedly came from Wharton's duct, judging from its contour. There is nothing unusual in its size and weight.

After thoroughly cleansing the abscess cavity, I passed a probe, and was surprised to find evidence of another stone situated deeply within the tissues of the submaxillary gland. My first effort to extract it resulted in failure, as it slipped back further in the cavity. My second attempt, however, was successful. The stone was irregularly oval and about as large as a cherry. One would suppose that a person whose mouth is constantly in action by reason of his professional occupation, would be able to detect anything of an abnormal character in it. Yet in this instance the patient never suspected anything whatever, until two weeks ago, when as he states, he contracted the cold, which most likely caused the abscess about which he consulted me. He is positive that before contracting his cold he never felt anything unusual in his mouth.

As an illumination of the powers of endurance, it is interesting to state that my patient, a weak man at best, not only followed his usual vocation as a clarionet player up to the day on which the calculus was discovered and extracted, but also played his musical instrument on the evening after the operation despite the fact that there was a large iodoform tampon in the old site of the calculus. There are on record other instances where a supposed "cold" led to the detection of salivary calculi.

Mr. Carver[1] removed a stone from a man 70 years of age, who had noticed some tenderness in the sublingual region only for about five or six weeks.

Demons[2] found a stone the size of an olive in Wharton's duct, which produced no symptoms until three weeks before its removal.

There are, on the other hand, cases recorded in which the stone had made its presence felt for several years before its final extraction. Alfred Smith and Alex. T. Scott[3] reported a case in which a tumor had been first noticed by the patient seven years before, at which time it was the size of a pea.

Jos. Dixon[4] describes the sufferings of his wife, who had noticed a swelling under the tongue for fifteen years. Mr. Alexander Bruce[5] removed a stone of "considerable dimensions," as he states it, although it weighed only 11½ grains. In this instance the patient had felt it fourteen years previously. Dr. Webb's[6] patient felt a small lump sixteen years before being operated upon. Dr. Padieu's[7] patient felt it for twenty-five years, and Dr. Schuster's[8] patient for forty-four years (!)

It is known that patients suffering from salivary calculi frequently obtain relief from their symptoms by squeezing out the pus and mucus which surround the stone and fill the cavity, into the mouth, from which they expectorate it or unconsciously swallow it. Thus, we can understand in Jos. Dixon's case the attacks of dyspepsia lasting for fifteen years, which were not amenable to treatment. The patient apparently swallowed the secretions which she pressed out from the glands.

Other symptoms caused by the stones are pain increased by movements of the jaw such as during mastication, and from retention of saliva shortly after mastication. Still another symptom occasionally encountered is difficulty in breathing. That this last symptom is sometimes dangerous to life is proven by the case of J. W. Hulke, and my second case.

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[1] The Lancet, March 13, 1886, p. 494.
[2] Jour. de med. et de chir. de Bordeaux, Sept. 6, 1885.
[3] Jour. of the British Dental Assoc., 1888, p. 175.
[4] Lancet, Nov. 26, 1887, p. 1068.
[5] Transactions of the Pathol. Soc. of London, Vol. xvii, p. 134.
[6] Ibidem, viii, p. 221.
[7] Gazette Med., June 6, 1885.
[8] Oesterr. Vierteljahrsschr. fuer Zahnheilkunde, Oct. 1886.

Hulke[9] treated a young lady who had a tumor under the tongue which had been growing for the last six years. This tumor sometimes enlarged temporarily to such proportions as to threaten suffocation. At times there would be a discharge into the mouth, followed by the return of the swelling to its former size. The patient indicated by her statements that the stone had nearly suffocated her.

The following case which came under my observation, illustrates this last point:

Case 2.—Mr. N. S., aged 45 years, had been suffering two and a half years before he noticed a swelling under the tongue. This swelling grew steadily, and occasionally caused him great pain. For the last ten days the pain and swelling had grown worse. During the night he snored so loudly that he had to be wakened, and on these occasions his face would become markedly cyanotic. The patient was tall and very stout, and had the hoarse voice that characterizes the chronic alcoholic. On examination the tumor was found to project slightly from under the tongue and to extend along the right of the frenulum, reaching to the floor of the mouth, backward between the root of the tongue and the angle of the jaw, at which spot it appeared to be adherent to the buccal mucous membrane, simulating the case described by Hulke. By palpation fluctuation was elicited, and a hard mass could be plainly felt within it. I was quite sure that we had to deal here with a salivary calculus which had formed in the beginning of the main duct, and I advised its removal. For obvious reasons the patient refused and went home. His heart and lungs were normal.

Several weeks later I received a note from his physician, stating that the patient had died. The night preceding his death he had imbibed more freely than usual, and then retired. Having fallen asleep, he began to snore so loudly that his wife awoke. She found the patient breathing with great difficulty, while his face was black and blue. She tried to awaken him, but failed. She had a physician called; but the patient died of suffocation before medical aid reached him. An autopsy disclosed an almond-shaped salivary calculus, imbedded in a pus cavity. Death no doubt resulted indirectly from its presence; for on previous occasions he would invariably get rid of the pus that had accumulated in the cavity by coughing or hawking it out, and in this manner relieve himself of the cause of his dyspnea. But on the fatal night he was so fully under the influence of liquor that he could not arouse himself from the stupor caused by it, and thus succumbed.

I remarked in the beginning of this paper, that when I compared the sizes of salivary calculi and rhinoliths that I believed that the majority of these deposits owe their formation to the fact that a foreign body enters the duct or gland itself.

When Clinton Wagner[10] says: "These concretions are formed by the deposit of earthy salts from the saliva in the excretory ducts leading from the gland or in the body of the gland itself, and that the cause of the deposit is an obstruction to the flow of saliva either to or through the excretory duct," he overlooks the primary cause of their formation, *i. e.*, a foreign body. Around this foreign body is deposited layer after layer of earthy salts. This obstruction causes a retention of the salivary secretion. I do not, however, claim that this process obtains in all instances of salivary calculi, but in the majority.

Professor Ribbert of Bern, found that a hair of a toothbrush had forced itself into Wharton's duct, thus giving rise to the formation of a salivary calculus around it.

In several other instances the same causative element was found. Hulke removed a stone weighing 76 grains. Its broken surfaces exhibited concentric rings around a small, black, central speck. This speck was a fragment of wood.

It must be true that in certain calculi no central foreign body can be demonstrated, because it has undergone chemical changes. Galippe reported a case of spontaneous discharge of a stone from Wharton's duct. This calculus had concentric strata without a kernel being found. But he found microbes, already described by Malassez and Vignal, in these deposits.

One case is reported by Wertheimer[11] in which an abscess formed during eating. The patient while eating blueberries suddenly noticed a tumor in the right submaxillary region, and at the same time a burning sensation in the mouth These symptoms always appeared during mastication. Finally, among greenish cheesy masses, the berries were found. Here stones had not yet formed, so, properly speaking this case does not belong here, but it shows how often foreign bodies enter Wharton's duct.

Case 3.—Mr. M. P., 57 years of age, merchant, of moderate habits and enjoying good health, had noticed for some time a small lump in the left submaxillary region. For the last three months it had grown steadily and had become painful during and after mastication. A simple incision was made, and a small oval shaped stone removed. In cutting it open, concentric rings were seen and a very small piece of wood in the center. It was ascertained that the patient had been for years in the habit of chewing toothpicks, thus most likely forcing the foreign body into Wharton's duct.

These cases certainly prove that the formation of calculi around a foreign body does occur in these as well as in other parts of the human anatomy. That there are other causes for their formation there is no doubt, an increase or decrease in the quantity of saliva is an important factor.

A case of Thomas Ballard[12] is of interest: A young lady suffered from the effects of a buccal abscess which had opened spontaneously. Two small calculi were removed from the abscess cavity. It was learned that eleven years before she was salivated during an attack of jaundice. It is probable that this salivation caused a swelling of the excretory duct of the gland, then a retention of saliva and gradually the formation of a stone.

Just as increased flow of saliva may tend to produce a calculus, it may also tend to wash away a nucleus in the duct, around which salty deposits might form. This was the case with a patient of Kurz's, who had taken pilocarpin internally. The increased glandular excretion washed out a calculus from Wharton's duct.

In conclusion, I also believe that the submaxillary is more often the site and seat of calculi than the parotid gland, because the secretion of the former gland contains a comparatively larger proportion of mucin, a substance which seems to possess considerable adhesive properties, and seems to favor the deposit of inorganic salts. This belief is confirmed by the fact that the usual site of the calculus is just at the outlet of the salivary duct on the buccal mucosa, a point which furnishes a ready ingress for foreign matter.

1003 Madison Ave.

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[9] Transactions of the Pathol. Soc. of London, Vol. xxiv, p. 88.

[10] N. Y. Med. Jour., Nov. 11, 1898, p. 560.

[11] Corps étrangers du canal de Wharton. Bulletin méd. du Nord. Dec. 12, 1885.

[12] Transactions of the Pathol. Soc. of London. Vol. xviii, p. 93.

DISCUSSION.

Dr. Solly—I once found a calculus in the submaxillary gland. I have never seen a case reported where the calculus was imbedded in the body of the gland. An incision was made following up the duct and the stone was felt by the finger, imbedded in the gland, and was then forced into the mouth and removed. The stone was about the size of a chestnut and weighed twenty-five or thirty grains.

Dr. Freudenthal—I am sure that there are several cases on record where the stone was in the body of the gland. Dr. Bull of New York has one, and there is a case reported by another surgeon whose name I do not recall, in which the stone could not be reached from the inside of the mouth and he had to make an incision from the outside.

AN UNUSUAL CASE OF BLOOD CYST OF THE POSTERIOR NARES.

Presented to the Section on Laryngology and Otology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY JOHN N. MACKENZIE, M.D.
NEW YORK, N. Y.

The patient was a young lady of 23. As a result of the imperfect extraction of a tooth, there was necrosis of the jaw, with subsequent exfoliation of bone, leading to a more or less complete obliteration of the lower portion of the antrum. This had happened five years before consultation. For three years before consultation she had suffered with symptoms referable to the orbit and antrum. On examination a small glistening point was seen, resembling the appearance seen in fibroma of the nasal cavity. The right side of the nose was occluded. The mass looked very much like a child's toy balloon. The envelope of the cyst was extremely attenuated looking as if it was scarcely a line in depth. I made an appointment with her to return the same day, but in the meantime a spontaneous rupture occurred, and when I examined her the next day I was unable to find any trace of the growth. The inflammatory process which originated the trouble probably started in the antrum as a result of the necrosis of bone, and from this the edema and the subsequent formation of the cyst had resulted. I consider this a unique case. Some cases of large serous cysts have been reported.

AN ETIOLOGIC STUDY OF ATROPHIC DISEASE OF THE UPPER AIR PASSAGES BASED UPON AN EXAMINATION OF TWO HUNDRED CASES.

Presented to the Section on Laryngology and Otology at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, June 1-4, 1897.

BY J. L. GOODALE, M.D.
BOSTON, MASS.

In the following paper I desire to invite your attention rather to the predisposing than to the immediate causes of atrophic states of the nose, pharynx and larynx. The statements current in our recent textbooks that certain classes of persons under certain conditions are particularly liable to these conditions appear to be derived from general impressions. Since under such circumstances, a few positive examples are apt to outweigh unduly a large number of negative and therefore easily forgotten ones, I undertook recently to submit the current statements to the test of a systematic examination. For this purpose 200 cases of atrophic disease of the nose, pharynx or larynx were investigated carefully with reference to the following points.

1. The relation of these states to age, sex, sexual functions in the female, and general nutrition.
2. The influence of a normal patency of the anterior nares.
3. The influence of the inhalation of an insanitary atmosphere.
4. The influence of pre-existing local or general disease.
5. The relation to associated hypertrophic states of the neighboring mucous membrane or lymphoid structures.

In the consideration of atrophic disease, I have at the outset excluded the following conditions:

1. An imperfect development of the intra-nasal structures, especially of the turbinates, occurring in chlorotic young women, and not associated with nasal obstruction or chronic inflammation of the nasal mucous membrane. For purposes of convenience, I have called this condition congenital hypoplasia of the nasal turbinate, since, although histologic examinations are wanting, an analogy is very directly suggested to Virchow's congenital hypoplasia of the female sexual and vascular systems associated with chlorosis.
2. I also exclude an imperfect development of the intra-nasal structures occurring in post-nasal obstruction, probably due as I have previously suggested[1] to the absence of normal respiratory alterations in intranasal air pressure requisite for proper nutrition.
3. There are to be excluded the anemic conditions of the nasal mucous membrane, secondary to general malnutrition, particularly seen in phthisis; also
4. The pressure atrophies from septal deviations and new growths.
5. Finally, atrophic states associated with syphilitic lesions in the vicinity.

With the exception perhaps of the last, such states are the result of altered nutrition and non-inflammatory in nature. They are therefore sharply to be distinguished from the genuine atrophy at present under consideration. The five conditions just referred to although recognizable when occurring typically may, if inflammation supervenes, closely resemble clinically mild forms of genuine atrophy. This possible source of error is to be borne in mind in the examination of cases.

For purposes of classification it appeared most natural to divide the cases of true atrophy into the following groups:

1. Atrophic states of the nasal structures, not accompanied by decomposition, whether or not associated with atrophy of the pharynx or larynx.
2. Atrophic states of the nasal structures with characteristic fetor, whether or not accompanied by atrophy of the pharynx or larynx.
3. Atrophic or dry conditions of the pharyngeal mucous membrane unaccompanied by atrophy within the nose.

For convenient designation these conditions will be called respectively, non-fetid atrophy, fetid atrophy and pharyngeal atrophy.

The relations of these atrophic states to sex are *non-fetid atrophy*, males 20, females 54; *fetid atrophy*, males 28, females 71; *pharyngeal atrophy*, males 12, females 15.

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[1] An Experimental Study of the Respiratory Functions of the Nares; Boston Medical and Surgical Journal of November 5 and 12, 1896.

Age.—Since the age at which characteristic symptoms first developed is of more value than the age at the time of examination, a table of this is given.

AGE OF DEVELOPMENT.

AGE.	MALES.			FEMALES		
Between	Non-fetid.	Fetid.	Phar.	Non-fetid.	Fetid.	Phar.
1 and 4	(3) 1	(2) 1	. . .	(6)	(6)	. . .
5 and 9	(4) 3	(9) 1	. . .	(8) 8	(28) 1	. . .
10 and 14	(4) 3	(8) 7	. . .	(2) 7	(22) 8	. . .
15 and 19	6	(2) 8	(4) 2	(2) 11	(5) 17	(2) 1
20 and 24	3	(3) 1	(2) 3	9	(1) 19	(1) 2
25 and 29	8	5	1	10	(8) 10	(8) 2
30 and 34	1	3	1	7	4	2
35 and 40	. . . .	3	. . .	3	7	3
Above 40	. . . .	. . .	3	4	5	(5) 6
Doubtful Duration	(6)	(4)	(6)	(36)	(7)	. . .

(Figures in brackets indicate age when characteristic symptoms appeared; unbracketed figures indicate age at time of examination.)

Sexual functions in the female—Character of menstruation.

Non-fetid atrophy (54 cases): Menstruation regular and normal, 27 cases; menstruation irregular or scanty, 11 cases; menstruation not appeared, 6 cases; answers doubtful 10 cases.

Fetid atrophy (71 cases): Menstruation normal, 36 cases; menstruation irregular or scanty, 18 cases; menstruation not yet appeared, 8 cases; answers doubtful, 19 cases.

Pharyngeal atrophy (15 cases): Menstruation normal, 7 cases; menstruation scanty, 2 cases; answers unsatisfactory, 6 cases.

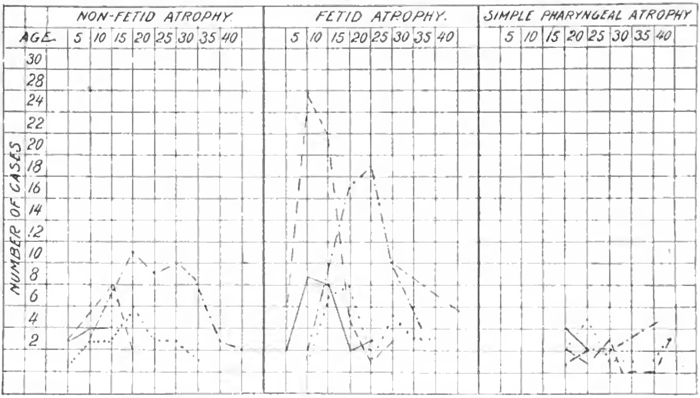

Chart showing absolute frequency of atrophic states of upper air passages in 200 cases at different ages.

Age of favorable commencement of affection, male ———. Age of favorable commencement of affection, female — — — —. Age at time of examination of male . . . . Age at time of examination of female — · — · — · —.

The patients were questioned with regard to the existence of any connection between the intensity of the atrophic symptoms and the period of menstruation.

In the fifty-four non-fetid cases, two only had noticed any increased dryness or discharge during menstruation, seventeen intelligent patients were sure that no such connection existed, and the remainder had never given the matter attention.

In the seventy-one fetid atrophies, nineteen had observed increase of crust formation during menstruation, nineteen were positive that no change occurred, three were sure that the nasal discharge diminished and was less fetid, the remainder being doubtful.

Of the fifteen pharyngeal cases only one had noticed increased dryness of the throat during menstruation.

A single case only, one of fetid atrophy, had noticed improvement after establishment of menstruation.

No case had noticed any change following marriage. In one case of non-fetid and one of fetid atrophy the symptoms greatly diminished after childbirth.

General health and nutrition.—In the seventy-four non-fetid cases it was noted that six males and thirteen females exhibited distinctly poor health and nutrition, the remainder being well up to or above the average.

In the eighty-seven fetid cases, twenty-four showed poor health and nutrition.

In the cases of pure pharyngeal atrophy, three cases, all females, showed poor health and nutrition.

The inhalation of an insanitary atmosphere and the previous existence of local or general disease were inquired into in all cases, but owing to the low degree of intelligence possessed by many of the patients, as well as for other reasons, the answers afford information of doubtful statistical value, and have therefore been omitted.

Abnormal patency of the anterior nares.—The presence of a configuration of the anterior nares permitting abnormally free inspiration was noted with reference to the following points:

1. An upturned or tip-tilted condition of the anterior nares.
2. Abnormal wideness of the vestibule.
3. Development of the vibrissæ.
4. Degree of laxity of the constricting band.

Of the twenty male non-fetid cases, one showed a moderate and five a considerable tilting up of the anterior nares.

Of the fifty-four female non-fetid cases, twenty showed this condition moderately, and two markedly.

In the fetid cases, out of twenty-eight males there was moderate tip-tilting in seven and marked in seven cases, while among seventy-one females this condition was moderate in sixteen and marked in twenty-three.

A widening of the vestibule appeared abnormally marked in the non-fetid cases among eight males and twenty-one females, in the fetid cases among eighteen males and forty-two females.

The vibrissæ appeared less abundant and smaller than normal in the non-fetid cases among nine males and fifteen females; in the fetid cases among sixteen males and thirty-six females.

Of the pharyngeal cases two females and one male showed abnormal patency of the anterior nares in these particulars.

The constricting band of the vestibule appeared unusually lax or deficient in the non-fetid cases among eight males and twenty-one females; in the fetid cases, among seventeen males and forty-three females.

The relation to hypertrophic states of the neighboring mucous membranes and of the lymphoid structures.—Of the non-fetid cases, one showed distinct hypertrophy of the nasal mucous membrane directly contiguous to the atrophy, while three cases showed a polypoid condition of the middle turbinate in association with atrophy of the lower turbinates.

Of the fetid cases, only one showed a hypertrophic condition in association, this being an enlargement of the lower turbinates posteriorly.

On the other hand, the cases of pharyngeal atrophy showed a very different condition of affairs, for seven females and five males, ranging in age from 23 to 72, presented a distinct hypertrophy of the nasal mucous membrane.

With reference to enlargements of the adjacent lymphoid structures, adenoid hypertrophies or remains were present in nineteen non-fetid, in seven fetid and in three pharyngeal cases.

Hypertrophy of the faucial tonsils was present in nineteen non-fetid, in twenty-two fetid and in six pharyngeal cases.

Enlargement of the lingual tonsils was present in eleven non-fetid, in fourteen fetid and in three pharyngeal cases.

Time does not permit an enumeration of some other results of this work, such as the relation to the preceding points of unilateral forms of atrophic rhinitis, or the relation sustained to them by different localizations of the atrophic process in the nose, pharynx and larynx.

Conclusions.—In recapitulation, the following facts are evident.

Both fetid and non-fetid atrophies are more than twice as common in females as in males, while pure pharyngeal atrophy occurs with nearly equal frequency in both sexes.

Both fetid and non-fetid atrophy begin with greatest frequency between the ages of 5 and 15, while the pure pharyngeal form was not found before 20, and occurred irregularly from that age up to 72.

A distinct relation is sustained to the sexual functions in certain females. While menstrual anomalies are uncommon, perhaps not more frequent than in an equal number of females with healthy air passages, yet in 4 per cent. non-fetid and in 26 per cent. fetid cases the atrophic symptoms were increased during the catamenia, while in 4 per cent. of the fetid cases the symptoms were diminished.

The establishment of the menses and the occurrence of pregnancy improved the symptoms in isolated instances.

In all forms, three-fourths of the cases showed good health and nutrition.

Unusual patency of the anterior nares was found in 40 per cent. non-fetid, in 60 per cent. fetid, and in 10 per cent. cases of pharyngeal atrophy.

Distinct hypertrophy of neighboring portions of the nasal mucous membrane occurred only in isolated instances among the fetid and non-fetid cases, while among the pharyngeal cases it was found in about half the total number.

Hypertrophy of the pharyngeal tonsil occurred in 20 per cent. of the non-fetid cases, in 7 per cent. fetid, and in 10 per cent. pharyngeal.

Hypertrophy of the faucial tonsils occurred with equal frequency among the three forms, namely in about 20 per cent.

A review of the preceding results indicates that the weight of their testimony is distinctly against the theory that non-fetid and fetid atrophy is the sequel to a pre-existing hypertrophy, at least to a hypertrophy as we ordinarily understand the term. On the other hand, the facts are in direct corroboration of the supposition that the process is primarily an atrophic one, whether we consider it to originate in the action of a specific micro-organism or not.

In pure pharyngeal atrophy it is more difficult to draw conclusions, owing to the greater complexity of the conditions. Without discussing its etiology, we have reason, from these investigations, to suppose that a form of atrophic pharyngitis exists which differs in nature and origin from the conditions called fetid and non-fetid atrophic disease of the upper air passages.

3 Fairfield St.

DISCUSSION.

Dr. FREUDENTHAL—I think Dr. Goodale did not lay enough stress on the question of the sanitary condition of the atmosphere. It is remarkable what an amount of bad air otherwise well educated people will stand. The air that we inhale is moistened in the nose. In order to fulfil its work, the air must have 50 or 60 per cent. of relative humidity. In summer the air is filled with moisture, but in winter it is not. In New York the atmosphere in winter contains not more than 10 per cent. of moisture. It is very probable that such an atmosphere will dry the nasal mucosa. The lack of moisture in the air can be made up by the nose for a time, but if the condition goes on too long the parts dry out. I am positive that the dry atmosphere that we breathe in our houses for six months of the year is one of the principal factors in atrophic nasal disease.

Dr. SCHEPPEGRELL—In New Orleans we have a very humid atmosphere, but I have no reason to believe that atrophic nasal disease is more rare than elsewhere. Dr. Goodale has no faith in the fetid atrophic rhinitis being a consequence of hypertrophic rhinitis. In ozena I have never been able to see any relation between them.

Dr. RICHARDS—In the mills in Fall River a moist atmosphere is necessary in handling the yarn, and yet I have a great many cases of atrophic rhinitis in my practice. Among the children who work in the mills it is common.

Dr. SOLLY—In Colorado, where the air is very dry, atrophic rhinitis is common, but hypertrophic rhinitis is not.

Dr. FREUDENTHAL—There is often a large percentage of humidity in the outside air in New York. I spoke particularly of the air in the houses, which we breathe in winter.

Dr. WOOLEN—At the first meeting of this Section that I attended, I stated that I did not believe there was any such thing as a tonsil in a healthy throat. I have also for a long time doubted whether there is any such thing as atrophic or hypertrophic *rhinitis*. The pathology of these cases is to be found in a disturbance of nutrition of the parts. There is a pathologic process going on in the fibrous structures underneath the membranes not essentially inflammatory. If we study these cases we will find that a process of hypertrophy is started which does not need to go far before it frequently turns in the other direction and becomes atrophy by contraction of these fibrous elements. I have long ceased to regard these cases as atrophic and hypertrophic rhinitis, but intra-nasal atrophy and intra-nasal hypertrophy.

Dr. HOFFMANN—If young children are closely observed it will be found that hypertrophic conditions of the nose and throat commonly exist.

Dr. GOODALE—It seems to me that the views of the different speakers may be brought into harmony when we consider the fact that under different conditions of the atmosphere the disease occurs with equal frequency. This may be explained by the great adaptability of the mucous membrane of the nose. This membrane has great powers of moistening the air. I have known individuals who were reared in a dry climate and those who were reared in a moist climate to have, normally, the same conditions in the mucous membrane. The predisposing causes of the disease are to be found primarily in the lack of resistance of the structures of the nose. This fact is corroborated by the greater frequency of these conditions among females, as a consequence of the greater delicacy of the mucous structures. My own view is that the cause may eventually be found in some bacterium.

MODERN PATHOLOGY AND THERAPY OF ACUTE RHINITIS.

Presented to the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association at Philadelphia, Pa., June 1-4, 1897.

BY A. R. SOLENBERGER, M.D.

CHICAGO, ILL.

In creating a rational and scientific basis for the treatment of acute rhinitis, we may assert the same general principles, which are fundamental to all other diseases, viz., that if the constitutional condition of the individual is such as to render him free from the predisposition, there is no such thing as an exciting cause for that individual. This is almost self evident in the case under consideration; for there are those in every climate, exposed to all the exciting causes, who never suffer from colds. The physiologic balance between the digestive, nervous and circulatory systems is perfect; they are immune to all external influences; to heat or cold, to atmospheric perturbations and micro-organisms. This immunity means perfect adaptation of the systems of the individual to his artificial environments; it means perfect tissue resistance to all disease producing causes. Here, then, we have a condition which is incompatible even with a predisposition to nasal inflammations.

It would be rational, then, to direct our treatment to the removal of the predisposition by restoring the normal physiologic balance between the systems and that of the integrity of the tissues. Our therapeutic measures should be directed toward any cause that is found disturbing this physiologic equilibrium, or disintegrating the tissues.

To locate and give value to these disturbing elements is to bring to light the true causal conditions of acute rhinitis. By utilizing modern scientific methods of diagnosis, we have come to see these causes in embryo behind and eventually within the digestive, the nervous and the circulatory systems. They constitute those fundamental conditions which have long been known as pathologic entities, but they have not usually been recognized as being responsible for nasal inflammations. These basal conditions are the temperaments and diatheses; we know them as the nervous, the bilious and phlegmatic; the rheumatic, strumous and tubercular.

Scientific methods of diagnosis show us conditions within conditions—conditions within the temperaments and diatheses, which manifest themselves, first in the state of the nerves and ultimately in the blood. Broadly speaking, the first link in the pathologic chain of acute rhinitis will be found primarily in any influence whatsoever that will unduly dissipate the nerve force. This may be a pathogenic germ—any poison in the blood—any dietetic regime that, from indigestion and mal-assimilation results in mal-nutrition and retention in the blood of half assimilated and, therefore, toxic products; or a diet that reduces the alkilinity of the blood; or it may be midnight dissipation, mental or physical overwork—any influence that constitutes a nerve irritant becomes a nerve exhauster, a peripheral and finally a central paralysant.

To trace one of these causal influences arising from the transgression of a physiologic law, let the transgression be that of mental overwork or a restricted nitrogenous diet. In the one case you have a direct central nerve exhauster, in the other an indirect nerve exhauster from the presence in the blood of a peripheral irritant, perhaps the uric acid crystal or superfluous peptones. In either case, there is first nerve irritation, the nerve grip upon the blood vessels is tightened, the vascular membrane of the respiratory tract offers the least resistance, and that of the nasal cavities the least of all; engorgement in the nasal cavities thus obeys a natural law; for, if now the irritating action continues in force, nerve exhaustion ensues. the nerves then loose their grip upon the blood vessels, there is vasomotor paralysis, the vessels have collapsed, filled with thickened and perhaps acid blood.

Here we have one pathologic pyramid of a well developed cold in the head, in which the inflammation of the Schneiderian membrane constitues simply the the apex, and the abnormal condition behind or within the digestive, circulatory and nervous systems forms the constitutional base.

There are, then, two primary conditions that come before the eye of the rhinologist in the treatment of acute rhinitis; 1, nerve irritants or exhausters; 2, tissue integrity. Nerve exhausters are as various as they are numerous, but the labor of detecting them is greatly simplified by the fact that they nearly all act through and culminate in the temperaments and diatheses. A vicious circle can always be seen in operation: nerve exhaustion, from causes outside the blood, produces an abnormal tissue chemistry; this results in waste and obnoxious products being thrown into the blood, which by their irritant action still further lower the nerve force and weaken the remote organs; these latter become reservoirs for accumulated by-products which are returned to the blood with increased irritative qualities.

If these organs happen to be the liver or kidney there will be retention of urea and uric acid, resulting in reduced alkalinity of the blood—a condition most favorable for mucous membrane inflammation of the respiratory tract. Thus the center of the vicious circle acts upon the periphery and the periphery upon the center.

If, in the past, failure has been the rule in the treatment of acute rhinitis and the disease has gone on and become the base of many serious chronic conditions, it is due to the fact that the deep causal elements have not been sought; the causal links in the pathologic circular chain have not been found; the pernicious circle had not been broken.

These considerations, however, do not in the least displace local treatment; but they do speak for rational and conservative local measures. If the pathologic strata in the Schneiderian membrane has become many times superimposed, or if there exists nasal stenosis from whatever local cause, or if there is disease of the accessory sinuses, local operative treatment is rationally demanded; but even in these cases unless constitutional treatment goes *pari passu* with local measures, the apex is removed while the base of the pyramidal structure remains unshaken.

This one law, this fundamental law, controlling vital tissue, we must constantly remember; that tissue integrity, tissue resistance always determines, not only whether there shall be any inflammation at all, but whether that inflammation shall terminate as simple catarrhal, or go on to polypoid, suppurative or malignant degeneration. In the presence of this law the only treatment that will permanently avail is that which is aimed at the base of the diseased structure,—to the restoration and maintenance of the soundness of the tissues. The history of a nasal polypus or of a deviated septum runs a long way down the the pathologic chain, and will frequently be seen to have had its beginning in some constitutional taint in which the soft tissues and bones went wrong. It is not claimed that this law of tissue resistance of the organism is a new one; it is as old as modern pathology, but the plea is that it be made the basis both of preventive and active treatment of acute rhinitis. These considerations, which in the minds of some are still theoretical, have to me become substantiated facts, from the rather large opportunity I have had in the past few years for the study of typical cases, and applying constitutional treatment.

During a period covering the six winter months of 1895 and 1896, when the atmosphere of Berlin was unusually damp and cold, and still mildly charged with the influenza bacillus, the clinics of Fraenkel and Krause were constantly crowded with patients suffering from acute colds. In the numerous cases, which then came under my observation, I sought to secure an etiologic classification, based on answers to questions put to the patients, and by other usual tests to prove the presence, or absence, of the temperaments and diatheses. In the notes taken the disease was thus classified as subjective, when the cause or causes were purely internal; or as objective when they were external, and mixed, when the cause or causes were both internal and external. In referring to the cases which were regarded as typical, and which were thus carefully classified, an approximate résumé would be as follows:

Seventy per cent. clearly pointed to one or more constitutional conditions as the cause, while 15 per cent. appeared to be due to one of the many external irritants, through the medium of the atmosphere or contagion; 90 per cent. of these cases were acute exacerbations engrafted upon chronic conditions in the nose and throat, and always gave the familiar history of repeated attacks. Those which appeared to be due to pure and simple external exciting causes gave the history of the inhalation of fumes of irritating drugs or other atmospheric irritants, or extension of inflammation from bronchitis or laryngitis; of measles, scarlatina, whooping cough, or of the inhalation of hot, dry air or exposure to cold and to the influenza bacillus. In the laboratories of Dr. Alexander repeated microscopic examinations of the secretions were made to discover the bacillus, which Hajeck believes to be responsible for acute rhinitis, but even in initial cases many other bacilli were seen, among them, the pneumococcus of Freidlaender. A few trials to produce the disease in animals by Hajeck's diplococcus completely failed. In about 25 per cent. of the cases, classified as constitutional, one or more of the exciting causes were found to be present, but in much the larger part no such history could be elicited; there was always the familiar answer "I don't know how I caught cold;" but there was always the significant fact that the constitutional cases gave the history of repeated attacks, while those cases which were put down as local had seldom suffered from colds. We have spoken of scientific methods of diagnosis—that they enable us to ascertain the true causes of acute rhinitis, and that they confirmed the above principle of treatment. It must be acknowledged, however, that all modern scientific methods, advanced as they are, can only give us an approximate etiology, but the claim is that treatment based upon this has been eminently successful in effecting a permanent cure of acute rhinitis and its multitudinous concomitants.

34 Washington St.

NON-SPECIFIC PERFORATION OF THE NASAL SEPTUM.

Presented to the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, Pa., June 1-4, 1897.

BY J. R. STRAW, M.D.
ASHLAND, WIS.

Perforation of the septum, either specific or non-specific, seems to have been considered of so little importance that few if any of our authors have given it more than a passing notice, in fact, all that I have consulted have dismissed it with only a paragraph or two at most.

Before I located on the south shore of Lake Superior, nearly four years ago, I had been taught to believe that practically all perforations of the septum were of specific origin, and up to that time was satisfied with that theory, and for several months after locating in Ashland, Wis., I continued to treat my cases accordingly. While I was soon impressed by the large number of perforations I found, I also discovered a supposed satisfactory explanation for them. Several Indian reservations surrounding our city, the inhabitants of which I had no doubt from another and correct ancient teaching, were thoroughly infected with syphilis, and that it would be somewhat disseminated among the superior race; however, after having lived there long enough to become acquainted with the people I found that the average white man in that section was about as moral and virtuous as elsewhere, and has little or no occasion and no disposition for social or other connection with this race.

After I had become well acquainted with the descendants and antecedents of some of the people who bore this "suspicious mark," I was forced to abandon the theory of syphilis in a number of them, and look for some other cause.

Very few of my patients were aware of the perforation, but came to consult me about their "catarrh in the nose," or some throat or ear trouble.

A large number of these perforations were in the anterior and cartilaginous portion of the septum, and a great many of them had cicatrized and showed no disposition whatever either to break down or advance, and even if there were unhealthy granulations, specific treatment did little or no good, so I began to resort to the galvano-cautery, and a protective dressing, such as unguentum. In a short time, without the specific treatment, the season being propitious, the borders of the perforations became smooth.

In regard to the etiology of these cases, I believe it is primarily due to our climate, which during three or four months of the year is extremely cold, the thermometer ranging during this time, from 0 to 30 and sometimes even 40 degrees below, and one who is out any length of time is liable to have the tip of the nose frozen; this is usually considered a very trivial matter. I think this freezing and thawing process has a tendency to produce erosions of the mucous membrane and breaking down of the cartilaginous portion of the septum, or the inspissated mucous adhering to the anterior portion of the septum and the patient's continued picking at it abrades the surface and leaves the sensitive papillæ exposed to a temperature 15 or 20 degrees below zero, which, I have no doubt, freezes them every time the patient exposes himself to this extreme cold.

I have treated a number of cases during my three winters in this section, that were going through the disintegrating process. I at first thought that to destroy or burn over this denuded surface would cause it to heal, but after repeated trials discovered that this mode of treatment was only adding fuel to the flames, and that it was useless to do anything with the view of effecting a cure during the winter months, and I now do nothing more than protect the parts with some simple ointment and have the patient plug the affected side with cotton whenver he goes out of the house if the weather is cold. When the winter is over, which is usually about May 1, I then apply the galvanocautery followed by an antiseptic dressing, which usually effects a cure.

PRACTICAL VS. THEORETICAL TONSILLOTOMY.

Presented to the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

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I doubt if there is any one subject in medicine and surgery more prolific in the way of literature than that of the tonsil. Hence to claim the addition of anything new to the subject would either savor of presumption or a limited acquaintance with current medical literature. In the past ten years there have been published over six hundred papers on various points relative to the tonsil. When we consider the volumes such an amount of literature means we are driven to the conclusion that either the tonsil is a most important organ, or it is an unusually frequent victim of pathologic conditions. The generally accepted reason is the latter; especially, since if we claimed the former we must of necessity be able to thoroughly establish its functional character and capacity.

A very brief, and necessarily somewhat incoherent, reference to the etiology of enlarged tonsil seems necessary. At the same time we must recognize the fact that any pathology we may seek to establish must be subject to criticism, since an uncertain physiology precludes the possibility of a reliable pathology.

Before inquiring as to what is, or what the cause of, an enlarged tonsil, let us fix in mind an ideal of normality. Opinions on this point are varied as is the number of observers. Bosworth, Woolen and others claim there is normally no tonsil present on inspection. The greater number of writers, however, admit the existence of a protruding glandular or follicular collection of lymphoid tissue between the pillars of the fauces. Wagner has discussed at considerable length atrophy of the tonsils, but it is difficult to imagine how there can be a question of atrophy unless there was some considerable tissue previously present. In many cases there is not a real hypertrophy, but only an enlargement in the tissues already there; again, there will be a distinct hypertrophy, or actual formation of new tissue elements. It is not the purpose of this paper to discuss the cause of or differentiation of this condition. They do exist, and even hypertrophy and hyperplasia may frequently be seen in the same tonsil. Nor is it always an easy matter to distinguish between the two. Certain it is, however, both are pathologic and both demand and are amenable to surgical interference. A consensus of opinion would seem to indicate that the normal tonsil is a collection of racemose glands or follicles occupying and filling the space between the faucial pillars. Hence, when the tonsil protrudes beyond the pillar it is abnormal and pathologic. Remembering, however, that in very many instances the pillar is firmly adherent to the tonsil, we may then have a decided increase in the volume and yet no protrusion beyond the pillar.

I wish to particularly emphasize a point in the anatomy of the tonsil, the importance of such distinction will appear later. It has usually been referred to as an olive-shaped body. As a matter of fact, which dissection either on the patient or cadaver will demonstrate, it is more nearly almond-shaped, *i. e.*, somewhat flattened and larger at one end. This heavy end is uppermost, frequently buried well up under the pharyngeal aponeurosis.

Many excellent authorities have inclined to the opinion that a constitutional dyscrasia, usually the uric acid, is by far the most frequent and potent etiologic factor. The etiology, even though hypothetic, may be summed up in these two propositions: 1, an underlying constitutional dyscrasia; 2, a micro-organism in the follicles, producing in either case either an hyperplasia or an hypertrophy.

Dr. Stucky has claimed that, "of all diseases of the upper air passages none is more conducive to serious after-effects than pathologic tonsils." In health there is doubtless a certain amount of lubricant furnished by this collection of racemose follicles. But if it be diseased what good can come from its forcing upon the bolus of food or into the stomach an excretion of pus cells, cholesterin, epithelium and the various other products of waste and disease? Dr. Turck, demonstrated that, "the diseases of the mouth, nose and throat do often play a most important part in the etiology of chronic glandular gastritis." He further called attention to the fact that "the oral cavity, especially when infected, is a perfect incubator of disease germs." If such facts are demonstrable concerning the pharyngeal mucous membrane, how much more serious must be the secretions and excretions of the tonsillar follicles and crypts when diseased?

The symptoms and appearance of a tonsil demanding extirpation are matters of such universal knowledge that any further reference to them at this time seems superfluous. Admitting that its true etiology is the uric acid diathesis, the entire lymphatic system in which we find the tonsils, joints, serous cavities and ileocecal glands is likely to be involved, and hence such admission only emphasizes the necessity for surgical interference. At the same time it should also warn us that pathologic tonsils compel us invariably to look for pathologic complications elsewhere in the system.

This leads us to the further fact, that in case a constitutional dyscrasia does exist it must be treated as such independently of any presumable tonsillar complication. A tonsillotomy, no matter what the method employed, will not complete the cure of such dyscrasia. Nor is there any doubt of the bad effect such dyscrasia or diathesis has upon the tonsil as well as upon the general health of the patient.

The neuroses due to enlarged tonsils are so varied, frequent and positive that it is no longer questioned that such do exist. Respiration is often affected. Phonation is most important, perhaps. I have never seen a case in which phonation was impaired that there did not occur a marked improvement in the voice, by thorough operation, both in its production and quality. Some laryngologists think the pitch of the voice is lowered by ablation of the tonsil. My experience, especially in professional singers, does not corroborate such a statement. I believe the added ease and increased clearness with which the voice is afterward formed will in reality raise the voice register by the same expenditure of effort, but only so in those cases in which the gland has been thoroughly eradicated. I can easily conceive why and how the register might be lowered in case the pillars were not freed from their adhesions, and a stump of hard unyielding, cicatricial tissue is left between the pillars. The ocular and aural disturbances attributable to this cause are frequently met with, and often yield most satisfactory results to the surgeon. Cough, I believe to be one of the most frequent and persistent of all the complications. It is, though not so frequently as formerly, urged by some presumably intelligent physicians, that the tonsil, if left alone, will atrophy later and thus cease to be a source of annoyance. But I scarcely think such advice is general, and could not be when once is seen the almost universal improvement in general health which their complete, and often even partial, removal produces.

A partial destruction of the gland, by whatever method is used, will oftentimes do more harm than good, and can not in any case accomplish all the possible good.

Whether the tonsil be a blood-elaborating organ, as some presume, or an assistant to digestion, or a lubricating fountain, or a leucocyte guard to the system, the presence of a pathologic condition precludes the possibility of its functional activity and demands removal, since no known medicinal remedy can restore that organic or functional capacity as it has become a veritable microbe trap. Though such a statement may seem to be rather sweeping and comprehensive in its compass, it admits of but few exceptions. As such, however, may be mentioned a tendency to or presence of malignancy, and even in the cases where surgical interference is deemed advisable, no other method affords nearly the hope of success of that suggested by this paper. Unusual vascularity or pulsation in the tonsil should be looked upon with suspicion in every instance. An acute inflammatory condition is always an indication for temporary postponement and at the same time is as positive an indication for subsequent operation. A prevalent epidemic would also suggest temporary delay.

I will call your attention to the various methods which have received popular recognition at the hands of surgeons. Celsus was wont to gouge out the gland with his finger, evidently considering it a nucleated structure. This is, however, too barbarous to receive notice further than for its historic interest.

Doubtless the most popular method is by means of the guillotine, in one or another of its many forms. The objections to this instrument are that one can not remove all the gland, except in rare instances; it often leaves a bruised edge, sometimes ending in a slough; again, you are never quite certain of the amount of tissue you are going to remove; the pillars are very apt to be injured by it; the danger of hemorrhage is not insignificant, though not as great as when the bistoury is employed; if the tonsil be of that soft, flabby character often seen, or if it be small and adherent to one or both pillars the tonsillotomy becomes *perforce* practically useless. However, notwithstandidg these real or apparent objections, I am convinced there is no method better adapted in case of young children under 8 or 10 years of age. Ignipuncture has attained more or less popularity, but it is an endless process at best, as one is never certain that all of the diseased follicles have been destroyed; it leaves a rough, ragged surface and the capacity for the absorption of toxins practically undiminished; it also leaves a portion of the tonsil to be absorbed, or to act as a focus for future inflammations. The cold wire snare has no advantages that are not possessed by other methods, and is in addition an extremely painful procedure; the danger of secondary hemorrhage is doubtless as great as by any other method. The cautery loop has been highly praised by Knight, Wright and others. It is certainly in many cases an excellent method, though some of the objections urged against the tonsillotome are equally applicable to the cautery snare. The knife as a means possesses such patent and potent objections that more need not be said. In the same category may be placed the use of destructive caustics and strong astringents or interstitial injections of various medicaments, no one of which will more than partially remove or counteract the pathologic condition, and to the extent they fail in this particular, they, as well as any and all other methods, fall short in accomplishing the greatest possible good and are to just that extent impracticable. Every operator sooner or later, plainly or by inference, admits the necessity of removal of the entire gland if possible.

I am convinced that it is possible, for the very forcible reason that experience has demonstrated it most conclusively. Several years ago Dr. Pynchon of Chicago suggested a method which was original, and which an experience of over two hundred and fifty tonsils in the past two years convinces me, possesses some advantages over all other methods yet suggested. Dr. Pynchon gave a detailed account of the technique of his operation in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION for Nov. 22, 1890. Improvements in some minor points have in that time been suggested by the experience of both Dr. Pynchon and myself, and I will briefly describe the operation as it is now performed.

The tonsils as well as the pillars have been thoroughly anesthetized by the external application of a 30 per cent. solution of eucain well rubbed in and the submucous injection of a few drops of a 10 per cent. solution into the upper portion of both pillars and tonsil; the tonsil is drawn well out into the throat and the pillars are both carefully dissected away from the tonsillar body to about one-half its extent. The electrode point being entered cold and burning out, as a usual thing. The upper point of the tonsil is then grasped with an appropriate forceps and employing the same traction as above referred to, the distance from the carotids is not only increased but a much better view of the field of operation is then obtained, then by a slow dissection enucleate the part, much as an ophthalmologist would enucleate an eye. Remembering always that the large end of the tonsil is uppermost and well imbedded high up under the pharyngeal aponeurosis; and further, that any of its tissue left will not only detract from the cosmetic as well as practical results of the operation, but will as well probably be a source of future trouble. After thus completely separating the upper portion to the extent of one-third or one-half of the gland, cut off the loosened part and apply to the surface a solution of silver nitrate, 6 grams to 30 c.c. water, after applying a coating of campho-phenique. The amount to be removed depends on the size and condition of the tonsil as well as upon the temperament of the patient. I have found that there was but little complaint of soreness if not more than one-third or at most one-half of the tonsil was removed at one séance. The remainder is treated in a like manner at a subsequent sitting. The length of time between the steps of the operation differs, but in ordinary cases a week is quite sufficient for the healing process, especially if the patient comes to the office for treatment meanwhile. This interoperative treatment is not so necessary as it is desirable, as I find a thorough cleansing and dressing of the wound assists materially in its healing, as well as reduces the soreness to a minimum. At these treatments the application of massage with a cotton-wrapped probe will help in giving a smooth surface to the parts after they have healed.

This method seems to be adapted to a larger percentage of cases for removal than any other now in common use. For the reasons already given it is the most practical in securing all of the pathologic tissue. The principal objections to its employment have been that it is not adapted to young children; this I consider the most valid objection that has come to my notice. The youngest patients I have known in which it was used were 10 and 12 years of age. The soreness and pain following the operation are not as severe as one might expect from treatment apparently so heroic. If the daily treatments are given, oftentimes there is no complaint whatever.

Very often the removal of one tonsil will effect a very considerable decrease in the size of the other. It will also have, at times, an almost miraculous effect upon a pharyngitis or other inflammatory action in the contiguous structures. Middle-ear difficulties seem especially amenable to its beneficent influence.

In closing allow me to call attention to several points which experience has taught me, will assist in giving the most desirable results.

1. Do only a small amount at each heating of the electrode—work five seconds and allow the patient to rest fifteen seconds.

2. Burn only where you can see just what you are doing.

3. Use an electrode bent at right angles and having a fine point. (At least three electrodes are desirable for the operation.)

4. Do not attempt too much at one sitting.

5. A strong solution of silver nitrate is an excellent hemostatic in case there is slight hemorrhage.

6. Be sure the electrode is thoroughly heated when you attempt to burn.

7. Cut off the portion loosened at each séance; it prevents healing by its friction, and is often an annoyance to the patient.

8. Do not operate if the gland be acutely inflamed.

9. Always remember the normal shape of the tonsil; and that one must dissect much more deeply at its superior portion in order to get all of the pathologic tissue.

10. It is sometimes best to cut from below upward while taking out the inferior portion; in this convenience should be the guide.

11. By care, the operation may be rendered almost if not entirely bloodless.

12. The indication in all cases is eventual total ablation.

13. Succeeding steps on the same tonsil should not be more than ten days apart.

14. When hemorrhage occurs, stop the bleeding at once with the heated electrode, and apply a solution of silver 6 grams to water 30 c.c., or stronger.

15. Try the method, in suitable cases, and I feel confident you will concur with me in the opinion that it possesses some advantages not found in any other.

103 State Street.

DISCUSSION.

Dr. GOODALE—I have recently completed some experiments which convince me that the tonsil does absorb through intact mucous membrane. Substances in the crypts are absorbed continually, under normal conditions, into the tonsils.

Frankel, in a paper published last year, stated that he had removed inflamed tonsils without any bad results. I have also removed a large number of inflamed tonsils without harm. I think there is no objection to removing these masses of putrefying material and getting them out of the system. I think my cases have improved and recovered more rapidly than if I had not operated.

Dr. LAUTENBACH—The question of absolute and complete extirpation of the tonsil is probably the most important which will come before this Section. The method which Dr. Coulter has advocated is the best for difficult cases. An important point is to get the tonsil into position. I have an instrument which I find valuable for this purpose, especially in the cases of children. The method I usually adopt is to remove all I possibly can at one time, either by the tonsillotome, the guillotine or the scissors. The fragments can be burned out with the electro-cautery at the same sitting. I think that in this way there is less inflammatory trouble. The patient is usually willing to stand one full rather than several partial operations. This is especially true of children.

Dr. ROE—I do not advocate the use of the cautery for the removal of tonsils, for the reason that I do not regard it advisable to reduce the tonsil or to replace it by scar-tissue. On removing the tonsil with a cautery there must be a very extensive burn, leaving cicatrix behind that often causes much trouble. The plan that I have adopted on removing tonsils is first to enucleate them from all adhesions to the pillars of the fauces. This I do with a slender instrument having a curved but a blunt tip. By so doing we lessen the danger of wounding the pillars of the fauces, which is the main source of hemorrhage after tonsillotomy. After this is done I either excise the tonsil with a bistoury or remove it with a cold-wire snare. By this method it is exceedingly rare that the operation is followed by any hemorrhage, and by the use of the snare it is unusual to have any hemorrhage at all. I always remove at one sitting every portion of the tonsil requiring removal. If you remove the diseased portions at different times, you have a series of sore throats, which is entirely unnecessary. There are many cases of diseased tonsils unattended with hypertrophy, which cause a great deal of disturbance in the throat. This tissue can readily be seen by pressing back the pillars of the fauces or by drawing out the diseased tissue with a tenaculum.

The importance of the removal of this diseased tissue has also been corroborated by Harrison Allen. I have seen a number of such cases in vocalists, in which very marked vocal disability was entirely relieved by the removal of this diseased tonsillary tissue. In the removal of this tissue and the use of the knife and the tonsil punch forceps is much superior to any other method, and especially to the galvanic cautery; for the reason that the cicatricial tissue caused by the use of the cautery interferes with the proper action of the pillars of the fauces, thereby causing more or less rigidity of the parts and consequently seriously affecting vocalization.

Dr. Richardson—I have found that the most unsatisfactory cases were those in which the pillars of the fauces were attached to the anterior surface of the tonsil. I saw Dr. Roe operate in Rochester, and was so delighted with the procedure and with the complete separation of the pillars from the tonsil, that I obtained one of the instruments used by him. I have used the instrument since with a great deal of satisfaction, especially where there were strong adhesions between the anterior pillars and the tonsils. It is in these cases that we have the greatest difficulty and the greatest danger of hemorrhage. In the simple drawing out of the tonsil the pain is not very great and there is little or no bleeding; while we know that by the galvano-cautery method the pain is exquisite for hours and sometimes days afterward.

Dr. Woolen—As to the use of the cautery, I think the truth was well formulated by an assistant of mine who said: The difference between the galvano-cautery and the scissors or other cold instruments is that with one we have a wound, and with the other a wound *plus* a burn, a distinction always worthy of special recognition.

Dr. Daly—There is no operation for the removal of tonsils that can not be well and efficiently done with four instruments, two knives proper length, a tenaculum, and the curved rat-tooth forceps. An enlarged tonsil is not part of a normal throat. First, remove the tonsils; second, do it quickly and effectively by the most painless method you can adopt; but last, and most important of all, leave the throat and fauces in the anatomic condition in which nature intended them to be.

Dr. Cline—I have made liberal use of the actual cautery, and have found it valuable in certain cases. It doses no harm if you use it in the proper manner. I have never had any serious results from a burn, provided I did not burn anything I had no business to. This is true also in regard to the nose. I separate the tonsils from the pillars, and then use the tonsillotome instead of dissecting out the tonsil. Unless you have the patient anesthetized, or well cocainized, there will be difficulty in removing the tonsil by enucleation. Take the tonsil out with one stroke of the tonsillotome and then if after that there are any of the crypts left remove with the actual cautery. I see no objection to taking out an inflamed tonsil, particularly if it is hypertrophied.

Dr. Gibbons—I approve of Dr. Roe's method of separating the pillars. In doing this I use a tonsillotome that is not sharp. I generally take a small piece of pine wood and twist it around the edge to dull it. The cold snare requires a strong hand. I have seen Bosworth find difficulty in using it. I have often thought that the snare could be improved by using hydraulic force. I use electricity very seldom, except sometimes to separate the pillars. I sometimes use the snare.

Dr. Richards—The Leland tonsil knife answers very well in certain of the flat tonsils, where the ordinary tonsillotome is inadmissible. This knife, which is short, curved, probe pointed, set at right angles to the handle and made right and left, is introduced into a crypt and pushed along the curve and allowed to cut its way out. This is successively done until all the crypt are entered. The resulting tabs of tonsillar tissue are readily removed with curved scissors. Originally I followed the use of the knife with the galvano-cautery point, carrying it to the bottom of each crypt operated on. This was rather painful and followed by more or less inflammation, in one case by peritonsillar abscess, so that I now rarely use the galvano-cautery for this purpose. With this method the operation is almost painless and can be completed in one or two sittings.

The Chairman—I have removed tonsils by all methods, and am satisfied with none of them. There is something to be said in favor of each method, and each has its disadvantages. I have adopted the expedient of selecting my cases. In those where I think hemorrhage is liable to result the cautery in some form is selected. In children the tonsillotome is the best instrument. As to Frankel's statement that he had had no bad results from the excision of acutely inflamed tonsils, I do not understand that he advises the operation in this condition. He used it as a means of securing specimens for bacteriologic investigations, not as a remedial measure.

In reference to the separation of the pillars from the tonsils, if there is any muscular substance involved, I separate it, but if there is simply mucous membrane, I do not think it is necessary to subject the patient to this additional procedure. In many cases the membrane is reflected from the anterior pillar and makes an envelope for the tonsil, it contains no muscular substance and I see no objection to making the ablation through this structure.

Dr. Coulter—I think that Dr. Goodale misapprehended my ideas in reference to the absorbent power of the tonsils.

After the removal of tonsils in an inflamed condition, you necessarily add to an already dangerous condition if you then apply the cautery. My ideas of pathology would not lead me to operate on an acutely inflamed tonsil.

The tonsil is a gland, not made up of any part of the pillars but distinct anatomically from them, and you can use the cautery without fear of producing any cicatrix. If you do not destroy any muscular tissue, you have no cicatrix. With the knife you can not do this. If you have hemorrhage, you can not see where you are operating, and will either destroy muscular tissue or leave some of the tonsil, either of which is undesirable.

A CASE OF CHRONIC ABSCESS OF THE TONGUE.

Presented to the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, Pa., June 1-4, 1897.

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I offer this single case of chronic abscess of the tongue for your consideration, on account of the infrequency of its occurrence and the peculiar train of symptoms which attended its final termination. A chronic abscess of the tongue is a small rounded or oval tumor situated deep in the base on the dorsum of the tongue, anterior to the circumvallatæ papillæ, filled with pus in which fluctuation is present or absent according as the pus is, or is not, tightly pocketed and of several years' duration. According to Butlin this disease is a very uncommon one, and is most frequently observed in adults. Butlin states that the commencement is insidious, and that there is seldom any history of inflammation preceding the onset. In the case which I report I knew of the existence of the abscess for over a year before the pus was liberated or any acute symptoms developed, and the patient states that she had known of its existence since early childhood.

During the fall and winter of 1889, I was treating a young woman 18 years of age for a nasal and postnasal catarrh. On the paternal side there was a strong tubercular history. The patient had the usual diseases incident to childhood. At the time of her first visit I noticed a prominent oval elevation in the center of the dorsum of the tongue just anterior to the circumvillatæ papillæ. This mass was about two centimeters long, about one centimeter in breadth, and projected above the surface of the dorsum of the tongue about one-half centimeter at the most elevated point. The mucous membrane over the mass was paler than over the remaining surface of the tongue and was very tense. The tumor seemed tense, deeply seated and no fluctuation could be detected. The woman stated that this mass had been noted in her tongue since early childhood, and as it had caused her no inconvenience she did not care for surgical interference. As the growth seemed in no way to interfere with functions, and offered no obstruction to the proper treatment of the throat I respected her wishes. I diagnosticated the growth to be either a dermoid or a simple cyst.

December 15, 1889, ten days after the patient had been discharged, I was called to see her on account of an intense earache. In the morning she had noticed considerable soreness in the lateral walls of the pharynx, which as the day wore on became more intense and radiated toward the ears. I examined the pharynx and found it quite normal in appearance both in the oro- and naso-pharynx. The auditory canals and membranes were normal. Hearing normal. The patient was evidently suffering, and I was perplexed.

December 16. Patient reported at my office in the morning. Had passed a sleepless night. Evidences of pain very marked. Had taken no food for twenty-four hours. Temperature 99.8. Nose, naso-pharynx, oro-pharynx, larynx, auditory canals and tympanic cavities normal. Now all the pain was referred to the ears. The growth at the base of tongue appeared about the same as usual.

December 17. Patient's appearance as she sat in waiting room gave me great concern. Her expression was one of extreme anxiety, and her face bore evidence of great suffering. The hypodermatic use of .016 gram of morphia the night before had given only a transitory relief. The organs giving rise to painful sensations all appeared as normal as ever. Temperature 100. While examining the patient's pharynx the happy idea occurred to me that the mass at the base of the tongue might be the cause of all the trouble, although appearing perfectly benign. Introducing my index finger into the mouth I essayed to make compression on the growth, when the patient gave evidences of the most intense pain. I immediately laid the abscess open through its anterior two-thirds, resulting in the evacuation of several drachms of a very offensive, thin, watery pus. The symptoms were immediately ameliorated.

December 18. The day and night's rest had worked a marvelons change in my patient. She willingly submitted to a thorough laying open of the abscess cavity, which was then thoroughly curetted and packed with iodoform gauze. From this date the patient made a rapid and complete recovery. Swelling disappeared, and at the present writing shows only as a slightly elevated linear cicatrix. The patient is now under my observation, and the cicatrix is all that shows of the former condition.

The most interesting feature of this condition is the fact that the abscess remained quiescent so many years and then took an active course. It is also interesting to observe that all the symptoms produced by this change in the nature of the abscess were referred away from the seat of the disease. There was no change in the appearance of the tissues over or about the seat of the abscess, nor was there any spontaneous or superficial pain in the part of the tongue affected. It was only when firm and great pressure was made that any evidences of pain were demonstrated.

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DISCUSSION.

Dr. WOOLEN—Possibly this case was not an abscess for all these years. I have a case of blood cyst, or perhaps more properly varix of the tongue, which I have watched with solicitude for many years for fear it would rupture. Possibly Dr. Richardson's case may have begun in that way. I can hardly understand how an abscess could exist for so many years and pus be carried in it all that time. I think it likely that there was degeneration of some cystic formation. In my patient the growth is bluish in appearance, has evidently liquid contents, and is the size and shape of a teaspoon inverted on the tongue. It is pulpy and fluctuates as blood fluctuates. It gives the patient no inconvenience, but I fear rupture either spontaneously or artificially.

Dr. W. H. BRYAN—I can hardly conceive of an abscess existing as such for so long a time. It is possible that there may have been a cystic condition from which has developed a septic inflammation at a later interval.

Dr. D. BRADEN KYLE—I have only seen one case of abscess of the tongue and that was tubercular. Not only the tonsil but the cervical glands were involved, although the glands did not suppurate. Six weeks before operation marked symptoms of abscess at the base of the tongue had developed. The abscess was opened and contained cheesy material in which tubercle bacilli were found. This was a so-called chronic abscess, but it was really an acute condition at the time it was opened.

Dr. MAX THORNER—I have seen two cases of chronic abscess of the tongue. One was produced by a foreign body. There was swelling and all the symptoms of abscess at the base of the tongue. The symptoms had been present for half a year. I found a fish-bone embedded in the abscess. In the second case there was a chronic abscess of the base of the tongue of ten months' standing, which was no doubt tubercular. There was great difficulty in healing the wound, which closed superficially leaving a fistulous opening. I could get no detailed account of the history.

Dr. C. W. RICHARDSON—I had also thought at first that my case was probably a broken down cyst that had undergone suppuration, but after looking up the subject I came to the conclusion that it was a chronic abscess, for several reasons. Cysts are usually situated where the glands are more prominent and more numerous. They are more on the surface than this, which was embedded in the tongue, or to use Dr. Woolen's description, looked as though a teaspoon had been placed on the surface of the tongue. I am ready to accept the diagnosis that the condition may have been tubercular. In fact this young woman has a strong tubercular history on the paternal side. Nevertheless I think there is such a thing as chronic abscess of the tongue, and that such cases have been described, among them some which have existed for years before being opened.

CASE OF RECURRENT HEADACHE, EACH ATTACK BEING RELIEVED BY THE DISCHARGE THROUGH RIGHT NOSTRIL OF A FLUID FROM THE CRANIAL CAVITY.

Presented to the Section on Laryngology and Otology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

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The case which I report is so unusual that I am unable to find a similar instance in the records of medical literature. The case is one of recurrent headaches of a most violent character, each paroxysm continuing until relieved by the discharge of a watery fluid from the right nostril.

The following is the interesting history of this case: Sister M. J., a member of a holy order, suffering from deafness and an affection of the throat, was referred to me in January, 1893. While treating these conditions, from which the patient soon recovered, she called my attention to the repeated headaches from which she suffered, and to the fact that they were relieved by the discharge of a straw-colored fluid from the nostrils.

In February, 1885, the patient suffered from a most agonizing headache, which persisted in spite of the efforts of several physicians The pain at times became so severe that the patient was entirely oblivious of her surroundings. This continued for three weeks, and was relieved by an accident which appeared almost providential. While descending a stair, the patient fell down a considerable distance, her head striking against a stone jar at the bottom of the staircase. The fall was so severe that the patient was unconscious for several seconds, but when she revived, she observed that there had been a profuse discharge of a yellow watery fluid from the nostrils, and that the headache, which had persisted for three weeks, had entirely disappeared.

Five or six weeks after this occurrence the headache developed again, the symptoms being the same as in the former attack, but at the end of the fourth day there was a spontaneous discharge from the nostrils, principally from the right side, and again complete relief. These attacks recurred at varying intervals, the intermissions sometimes being only twenty-four hours, and rarely more than two weeks. The headaches persisted from three to five days, and sometimes as long as ten days.

Various remedies were prescribed for the relief of the patient, but without success. The discharge of the watery fluid from the nostrils, at the end of the attacks, did not appear to have attracted the attention of the attending physicians, or if it did, was considered as a mere coincidence.

On account of the unsuccessful efforts to relieve this condition, the patient finally decided to make no further attempts to relieve this affection, which made her life a burden.

In describing her symptoms to me, the patient stated that when these headaches commenced there was a feeling of stiffness in the neck near the collar bone; then the pain seemed to ascend until it formed a focus in the upper part of the head near the crown, and produced a sensation as if a boil were forming, the pain extending over the whole upper part of the head, and her eyes could be kept open only with difficulty. The face is flushed, but there is no elevation of temperature. An ophthalmoscopic examination gave negative results, and there was no exophthalmus.

From a careful study of this case, the conclusion was evident that there was direct cause and effect between the watery fluid, which afterward discharged from the nostril, and the recurrent headaches. The quantity of liquid discharged (about one ounce) indicated that an accumulation formed in a receptacle of about this capacity, and that the pressure was instrumental in causing the violent pain, and that relief was due to the discharge of the fluid.

From the location of the pain, my first impression was that the sphenoidal cavity of the right side was the cause of the symptoms complained of, and when I explained my view to the patient, she readily gave her consent to an exploratory puncture into this cavity, with a view of obtaining relief.

The opening of the sphenoidal cavity, as well as the other operative procedures, were undertaken during a paroxysm of headache, while there was evidence of strong pressure, so that liberation of the fluid and the subsequent relief would show that the seat of the trouble had been reached.

After thorough cocainization of the right nasal cavity, a long trocar, with the point slightly bent upward, was passed close to the septum at the level of the middle turbinal and then directed upward in the posterior upper part of the nasal cavity. With some pressure and a slight rotary motion, the wall was perforated and the free entrance of the trocar showed that the sphenoidal cavity had been reached. The trocar was then withdrawn and the canula left in place, but there was no discharge of the liquid.

A probe was now passed into the cavity, which appeared to be normal. There was no discharge of fluid, and the patient experienced no relief from the headache. The operation was done with due regard to asepsis, and there was no reaction or ill effects.

As there was considerable pressure about the eye, and from the fact that pain is sometimes referred to another locality by the patient, I then decided to open the frontal sinus. After an ineffectual attempt to catheterize this cavity from the nostril, the frontal sinus was opened externally under chloroform. A vertical incision was made over the inner superciliary region of the right eye, the skin and periosteum drawn back and an opening through the outer wall of the sinus was effected by means of a small trephine. There was no discharge of a fluid.

A probe passed through this opening entered the nasal cavity without difficulty. The periosteum and skin were then carefully stitched, and the wound healed by first intention. The scar was scarcely noticeable, but there was no relief from the headaches.

Although an affection of the ethmoidal cells could not readily explain the symptoms, still in view of the intense suffering of the patient, and her almost total disability to perform her duties, every attempt was made to relieve her. The ethmoidal cells were opened without success, and the antrum of Highmore was catheterized without giving relief.

While making a preliminary report of this case before the Orleans Parish Medical Society, a physician, in the discussion, stated his opinion that the symptoms might be of hysterical origin, and that there was no evidence, besides the word of the patient, that there was a discharge from the nostrils at the end of each paroxysm of headache.

Though this opinion was contrary to my belief, I decided to obtain corroborative evidence, and had the patient, during one of the attacks, placed in a private ward of the Eye, Ear, Nose and Throat Hospital, under the charge of two trained nurses, who were instructed never to leave the patient and to watch carefully for the discharge of the watery fluid from the nostrils.

At the end of three days the watery discharge was seen by the nurse, and a portion of it saturated a towel on the bed.

Having now excluded the various accessory sinuses, the probability of this discharge coming from the cranial cavity, which occurred to me from the early history of the case, became more fixed, and I decided to obtain a specimen of the discharge for microscopic examination. With this view, the patient was instructed to have a vessel always with her during the next paroxysm and, if possible, to catch the fluid so that a careful examination could be made.

The second attempt was successful, the larger part of the liquid being discharged into a bowl and soon after brought to me.

The fluid had a specific gravity of 1005, was slightly alkalin in reaction and contained a small amount of albumin. Chemically, the liquid resembled the cerebro-spinal fluid and the contents of the cranial lymphatic vessels in this region, which are almost identical in character. When this fluid was allowed to settle in a conical glass, there was a heavy white deposit; the clear supernatant fluid was of a pale straw color, and did not coagulate. The sediment consisted almost entirely of pavement epithelial cells, some occurring singly and others in flakes. A few red blood corpuscles were seen.

In a second specimen sent for examination, the admixture of blood was so large that it imparted a reddish tinge to the whole body of the liquid. In this specimen, also, there was a heavy deposit of pavement epithelium or endothelium.

It has been shown by T. S. Flatau (*Deutsche Med. Woch.*, Leipzig, Oct. 30, 1891) that there is sometimes a communication between the subarachnoid space and the nostrils, and he quotes a case of hydrocephalus which recovered after an abundant serous discharge from the nose. The existence of such a communication is also demonstrated by Schwalbe, Key and Retzius. Naunyn and Schrieber were also able to inject warm salty solution into the subarachnoid space of the dog which was discharged at the nostrils, the phenomena being accompanied by a protrusion of the eye and chemosis. In investigations on the human subject, Flatau found that although injections into the subarachnoid space reached the nose, the injection of colored fluid into the nose did not lead to an entrance of the fluid into the arachnoid space on account of the barrier presented by the columnar epithelium.

Another case, which is interesting in this connection, is one of meningo-encephalitis consecutive to an exploration of a supposed frontal sinus, reported by Dr. Mermod (*Ann. des Mal. du Lar. et de l'Or.*, April, 1896). The following is a synopsis of the report of this interesting case: A man, 30 years of age, who had undergone the successive opening of the right maxillary, the left sphenoid sinus, and of the right anterior and middle ethmoidal cells, on account of a chronic suppuration of these cavities, was affected with a cephalalgia of the right frontal region, which diminished after a free evacuation of a clear nonpurulent liquid. Under the supposition that it was an affection of the right frontal sinus, a flexible shaft was introduced, which penetrated a large cavity resembling an enlarged frontal sinus.

A second exploration, made under the same conditions, to the depth of 6½ cm., measured from the entrance of the nostril, was followed by violent pain in the head, rigors and unequivocal signs of meningitis. A large trepanation was then made, and it was found that the frontal sinus was entirely wanting, and its place was occupied by the frontal lobes. A sound introduced from above immediately and without difficulty penetrated into the nostril.

The patient died twenty-four hours later. The autopsy showed a sero-purulent meningitis commencing from the anterior part of the frontal lobes; there was no traumatism of the brain. Although the exploration had been made with care, and under all necessary antiseptic precautions, it had been the cause of the meningitis. The liquid, which ran intermittently from the nose, had been a cerebro-spinal fluid.

From a careful analysis of the case which I have reported, I concluded that the fluid, which had caused the first attack of cephalalgia, had accumuluted in the cranial cavity, and that the fall had been instrumental in breaking though the barrier which existed between the liquid and the nasal cavity.

The point of differentiation, which now presented itself, was as to whether this fluid came directly from the subarachnoid space or from some cystic formation in this region, connected with the lymphatic circulation.

The subarachnoid space is the interval between the arachnoid membrane and the pia mater. At the base of the brain there is a wide interval between the two middle lobes, and also behind the hemispheres of the cerebellum and the medulla oblongata. This space is filled with a cerebro-spinal fluid, which fills up the interval between the arachnoid space and the pia mater. The subarachnoid space usually communicates with the general ventricular cavity of the brain by means of an opening into the inferior boundary of the fourth ventricle.

The conformation of this space and the extensive communication of its fluid, including even the ventricular cavities of the brain, would easily explain the depressing as well as agonizing character of these headaches, the effects of which were so severe that they almost entirely incapacitated the patient from duty.

If this fluid were discharged from the subarachnoid space, it was difficult to understand why the same quantity came from the nostrils after each attack, and also why the discharge ceased so abruptly and did not continue to drip for some time after the first pressure had been relieved.

This peculiarity caused me to believe that it was due to a cyst connected with the lymphatic circulation in this region. The foramen cecum is an aperture formed by the frontal bone and the crista galli of the ethmoid, and when pervious transmits a small vein from the nose to the superior longitudinal sinus If the efferent lymphatic vessel of the perivascular lymphatics surrounding this vein should become occluded, it would form a lymphangiectasis, which would continually dilate from the plasma oozing from the blood vessel surrounded by these lymphatics.

The location of such a cyst in this region would not only cause all the disturbances due to pressure in the subarachnoid space, but would also explain the limited amount of fluid which was discharged after each attack. The slight admixture of blood corpuscles evidently came from the ruptured point in the upper part of the nasal cavity.

When my conclusions had been formed in this case I declined to make further surgical interference. Learning that the patient had suffered from attacks of rheumatism, I suggested to her physician to push the anti-rheumatic preparations, which was done, however, without any beneficial influence on the recurrent headaches.

I have from time to time examined the nostrils of this patient to see whether, perhaps, the cyst might protrude into the nostril, as we know that continued pressure will sometimes cause absorption of even bony tissue, and that the attacks might be relieved by early incision, but this has not yet been the case.

Medical Building.

DISCUSSION.

Dr. Gibbons—I am following at present a peculiar case of headache. Among the symptoms I find a suicidal tendency and also a fear of going insane. I think it is really a disease which ought to be termed "suicide," differing from melancholia in that really insane persons do not think they are insane, whereas these patients will tell you that they contemplate insanity or suicide.

The physiologic functions of this region are not well known. In my opinion, the cells have something to do with receiving from the air an electric current. They are grouped exactly like the cells of a storage battery, and I believe they have some such function. If Dr. Scheppegrell does not get relief after these operations, I believe it is because the enlargement of the cells or some other growth has not yet been reached.

Dr. J. Solis-Cohen—I would like to ask whether the possibility of specific disease has been eliminated.

Dr. Sheppegrell—The attending physician had given iodid of potassium without effect.

Dr. J. H. Bryan—Possibly it may be one of hydrops. Secretion may have taken place in one the deeper ethmoidal cells which could not be opened. Hydrops is a very rare condition. I thought it did not exist until Dr. Herman Knapp made his interesting report of some cases, the history of one of which was very much like this.

Dr. Max Thorner—There seems to be no doubt that the headaches were due to some intracranial pressure, though the ophthalmoscopic examination showed nothing unusual. In a case shown by Dr. Woakes in 1885 at the London Hospital for Diseases of the Throat and Chest, he considered the discharge from the nose to be cerebro-spinal fluid, in a case that bore close resemblance to the one reported A chemic and microscopic examination, if I remember rightly, was not made at the time. The discharge occurred intermittently and was always preceded by headache. A communication between the arachnoid space and the lymphatics of the nose has been proved to exist by Flatau's magnificent demonstrations, made at the International Medical Congress at Berlin, in 1890. This fact accounts for many otherwise obscure phenomena.

Dr. J. A. Stucky—From the history of the case and the quantity of the discharge, I am almost forced to conclude that the discharge was from the cranial cavity. There would not be over an ounce or so from the ethmoidal cells, even if they were much enlarged.

Dr. G. V. Woolen—I have often been surprised at the amount of discharge in the ethmoidal cells and at the large quantity of polypi that can be taken from this region. The amount of operative tolerance in this locality is remarkable at times. It does not seem that the fluid was cerebro-spinal, or there would have been other cerebral symptoms besides pain, such as coma, paralysis, etc.

Dr. A. De Vilbiss—Although many have done considerable work in the region of the roof of the nose, we should not invade that region without some fear of doing harm. Only about four months ago I witnessed the death of a patient from an operation in that direction. In old cases where we have empyema we can operate more readily than in acute cases. That the cerebro-spinal fluid can leak out and escape through the nasal cavity I believe, though I have never made any postmortem demonstration of the avenues by which it comes. I had a patient who, every few months, by bending the head forward could discharge about half a teaspoonful of cerebro-spinal fluid through the nose. He had also symptoms of focal epilepsy. He was relieved by puncturing the dura and drawing off the cerebro spinal fluid.

Dr. Scheppegrell—This case could not be one of hydrops of the ethmoidal cells, as this would not account for the sudden and complete discharge of the fluid, which indicates the existence of a kind of buffer, which in this region could be furnished only by the intracranial pressure. As already stated, a cystic accumulation in the subarachnoid space would alone explain the character of the fluid examined and the various symptoms presented in this case.

THE TREATMENT OF EMPYEMA OF THE FRONTAL SINUS.

Discussion in the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association,
held at Philadelphia, June 1-4, 1897.

Opened by J. H. BRYAN, M.D.
WASHINGTON, D. C.

In accepting your invitation to open the discussion on this most important and interesting subject, I feel that I can not do better than first to call your attention to a few of the anatomic peculiarities of the frontal sinuses, in order that the pathology and treatment of chronic suppurative inflammations of these cavities can be the better understood.

The size of the frontal sinuses varies greatly in different subjects, and frequently in the same subject the variation is very marked, one cavity occasionally being quite large while the other is many times smaller, or absent altogether.

After an examination of 120 skulls made by Herbert Tilley[1] he considers a sinus normal when it measures 28 mm. from the median line outward to about the junction of the inner and middle third of the supra-orbital ridge; and in vertical extent measured from the root of the nose from 20 to 22 mm. Lamb,[2] who has also investigated the size of these cavities, found the right one with a varying capacity from one and one-third to six c.c. while that of the left sinus was from one and one-fourth to four and two-thirds c.c. As showing the difference existing between the two sides he found in one instance the left sinus was to the right as seventy to ninety-five.

In health these cavities are separated by a very thin partition or septum which in the majority of instances is complete, although they occasionally communicate through a small opening. The septum is occasionally not straight, deviating to one side or the other thereby rendering one cavity smaller than the other.

Situated between the frontal and ethmoidal sinuses there is a series of cells formed by the junction of the ethmoid and frontal bones, but which form no part of either of these cavities. They, however, bear a very important relation to both sinuses, for when affected by an extension of a morbid process in either of the adjoining cavities they seriously complicate these conditions and render the prognosis much more uncertain. I believe in nearly all severe cases of empyema of either the frontal or ethmoidal cavities these cells are to a greater or less degree, affected.

Chronic empyema of the frontal sinuses while not an uncommon occurrence in some of the continental countries, as Russia and Germany, has not been so frequently observed in this country until within the past few years, and especially since the frequent visitations of epidemic influenza, which seems to have a special predilection for the accessory sinuses. While chronic suppuration of this cavity may and does frequently arise from other causes such as an extension of simple catarrhal inflammations from the nasal cavities, and from the retention of the secretions in the sinus by obstructive lesions within the nose, the most frequent cause in my experience has been the extension of the morbid process from the nose in the course of an attack of grippe.

While the prognosis of this affection is generally favorable the treatment will be found to be difficult and tedious according to the methods adopted for its relief.

Since the rapid advances made in the study of diseases of the nose there is a tendency on the part of some rhinologists to treat this affection through the nose, especially since Jurasz has pointed out the feasibility in a few cases of passing a probe through the infundibular orifice in the nose. There is no doubt that in a few instances this can be done, but in the majority of cases it will be found to be impossible to pass a probe into the frontal sinus through the fronto-nasal duct, for generally this duct is situated far back, and is occasionally so tortuous that no probe can be made to follow its course. When sounding the frontal sinus is possible treatment conducted through the nose without first making an external opening is only suitable for acute cases.

Max Schaeffer has proposed opening the sinus by making a forced opening through the nose. It is only necessary to mention this method to condemn it as very dangerous, for there is already one fatal case, by this method, on record. Any one who has paid any attention to the anatomic irregularities that exist in this region can not feel assured that he can enter the sinus by forcing an instrument through the middle meatus or middle turbinated body. Even should one be successful in entering the sinus by either of the above mentioned methods little could be accomplished in relieving the inflammatiom, for in these chronic cases the pus is very thick, best described as stringy in character; the cavity is generally filled with granulation or polypoid tissue, and there is frequently some caries of the surrounding bony walls. When such conditions exist no amount of irrigation with antiseptic lotions will relieve the inflammation. I can therefore speak of these intranasal methods only to advise against their employment in chronic frontal sinusitis of long standing. I think most authorities of any extended experience will agree that one of the external methods will in the majority of cases be called for, and the earlier the operation is done the shorter will the usual subsequent treatment be.

There are several methods proposed for entering the frontal sinus. One, which I employed in a case successfully, but in which the subsequent treatment was very tedious, is where the incision is made along the lower border of the supra-orbital ridge, first pulling the integument forcibly up on the forehead so that the line of incision would fall just under the eye-brow. The incision beginning at the root of the nose and extending outward from an inch to an inch and a half is made down to the bone, the integument and periosteum elevated, and the sinus opened at the internal angle either by means of a drill, chisel or trephine. This opening does not admit of a thorough inspection of the interior of the cavity, and any caries of the septum or fronto-ethmoidal cells could easily escape detection. The disadvantages of this method are that the opening does not admit enlargement of the fronto-nasal duct as readily as that through the anterior wall, consequently the cavity has to be irrigated through a rubber or metallic drainage tube introduced into the sinus at this point, which results in the patient recovering with a decided depression over the opening into the sinus, and occasionally with a fistulous opening remaining.

Panas.[3] who has had a large experience in treating this affection, recommends that an incision be made along the lower border of the supra-orbital ridge and then makes another perpendicular to this upon the base of the nose, the triangular flap including integument and periosteum thus formed is detached from the bone, and an opening made into the sinus near the inner angle of the orbit large enough to admit of a thorough exploration of the cavity.

Another method, which offers many advantages over the above mentioned procedures, is that devised by Ogston [4] of Aberdeen, in 1884, and more recently and independently advocated by Luc.[5] In this operation the incision is made in the median line commencing at the root of the nose and extending from an inch and a half to two inches on the forehead. The skin and periosteum are elevated and a centimeter of bone removed from the anterior wall of the sinus by means of a crown trephine applied several lines from the median line and about two or three lines above the supra-orbital ridge. By this means an opening of sufficient size is made so as to admit of a thorough exploration of the sinus, and caries of the bony walls, the septum, or of the fronto-ethmoidal cells can be easily detected and removed. After the removal of any polypoid or necrotic tissue the cavity is thoroughly cleansed, and the fronto-nasal duct enlarged by passing a trocar from the sinus into the nose, using the little finger as a guide, after which a self-retaining drainage tube is introduced through this enlarged opening and allowed to remain as long as necessary. The membrane lining the cavity may be touched with a 20 per cent. solution of the chlorid of zinc and the wound closed by means of an interrupted or a subcutaneous suture, which should then be hermetically sealed with a solution of iodoform and collodion. The subsequent irrigations can be made through the drainage tube until all secretions have ceased to form.

The advantages of this method of treating chronic abscesses of the frontal sinus are manifest in that the cavity with all of its irregularities is rendered thoroughly accessible, and all diseased tissue can be removed before closing the wound. There is no depression left after the removal of the button of bone from the anterior wall of the sinus, and only a slight scar remains which in carefully managed cases amounts to little more than an exaggeration of the natural cleavage of the skin so frequently observed in this region.

The duration of treatment is very materially reduced by this method. In a case I reported at the recent meeting of the American Laryngological Association the duration of treatment was a little over six weeks from the date of the operation, and it was somewhat prolonged in this case owing to an unfortunate accident which resulted in suppuration taking place in the line of incision, either from an imperfectly sterilized cat-gut suture, or an infection of the under surface of the wound from the cavity below.

Botey[6] has modified this operation somewhat with the view of preventing the scar that may be left after the median operation. After shaving the inner two-thirds of both eyebrows, he makes an incision the length of the internal third of the supra-orbital ridge, which is prolonged to the root of the nose. After elevating the integument and periosteum he removes the external plate of the sinus near the root of the nose, and then carefully detaches fragments of the anterior ethmoid cells until a large communication is left between the frontal and nasal cavities; the sinus is cleared of all diseased tissue and a strip of iodoform gauze introduced through the opening into the nose, when the external wound is closed.

This operation would seem to present some advantages over that of the Ogston-Luc method, especially in not leaving much of scar, and also in having the fronto-nasal opening sufficiently large to do away with a drainage tube.

After the artificial opening has been made the subsequent treatment consists in keeping the cavity free from all secretions, which is done by frequent irrigations with antiseptic lotions. The use of strong antiseptics in this cavity as well as in the other accessory sinuses can not be too strongly condemned. The best results are obtained after the persistent use of such mild applications as hydrogen dioxid and a saturated boric acid solution.

DR. MAX THORNER—Diseases of the frontal sinus, acute as well as chronic, are often of such a nature that diagnosis is easy, but in some cases it is very difficult. It is often extremely hard to find from which of the accessory cavities the discharge takes place. A patient who was brought to my service in the Cincinnati Hospital had previously all the accessory cavities of one side opened without finding the

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[1] Lancet, London, Sept., 26, 1896.

[2] Reference Handbook Medical Science, Vol. vii. p. 659.

[3] Archives of Ophthalmology, Vol. xx. p. 658.

[4] Medical Chronicle, Dec. 1884.

[5] Archiv. internat. de laryngol. Par. 1896, ix. 168-178.

[6] Rev. hebdomadaire de laryngologie, d'otologie et de rhinologie, No. 3 Jan. 16, 1897.

cause of persistent headache. It had been rather the habit of late to operate on the accessory cavities in headache which can not be traced to any other cause. It is almost impossible to gain admission into the frontal sinus through the nose, although I will not deny that it can occasionally be done. Some time ago I tried, on the cadaver, to introduce probes through the nose into the frontal sinus, and was astonished to find in how many different directions my probe had been conducted. Some observers have repeatedly stated that it was very easy to introduce a probe or flexible canula, but I do not think so. Even if there is only one case on record where death has followed the attempt at opening the frontal sinus from the nose others have occurred. Whatever may be the opinion regarding acute, I think that all agree that in chronic cases we should do the external operation. Operative treatment through the nose in such cases is almost impossible, and always dangerous.

The method mentioned by Dr. Bryan is among those almost universally used. Of late I have changed my method slightly. I do not make the incision in a straight line along the eyebrow, but following the eyebrow about two-thirds its length, and then curve it slightly upward toward the median line. I have found that access to the cavity is better, while the scar is almost invisible. In chronic cases, where there is extensive caries it is almost impossible, in my experience, to get healing in four to six weeks. In the modern, or so-called radical operation upon the middle ear cavities, we have the advantage that we plaster the skin into the wound-cavity to cover the raw bone surfaces, but we can not do that in the frontal sinus, though I think it has been proposed. Healing takes almost twice as long where there is extensive caries, especially where the conditions for drainage are not favorable. I have found it most advantageous in such cases to drain for some time at least through the external opening although it takes longer. In all cases where I found extensive caries, I left a little hole for drainage, and the results were better than where I had closed the external wound by sutures at the time of the operation and depended upon drainage through the nose alone. This method does not preclude closing the external wound at once in cases where we find no caries at all, or only to a slight extent.

Dr. J. A. **Stucky**—I have seen quite a number of these cases, and in every one there has been serious trouble in the middle meatus, and the middle turbinal has been enlarged. I have found that removal of the anterior end of the middle turbinal gave great relief. I believe the orifice of the infundibulum is closed by adhesions, and if we succeed in opening the process and subduing the inflammatory conditions, nature will often complete the case. By frequent cleansing of the nasal cavity and keeping the patient quiet, especially in acute cases, we can prevent more serious attacks. As to chronic cases, I am in favor of the external operation. I believe in making a large opening to see what you are doing and also to get free drainage. I prefer to make the opening with the trephine, at the root of the nose. I do not like the opening at the eyebrow, which I have tried but have had much trouble and swelling.

Dr. **Scheppegrell**—Where the external operation is necessary it should be done by the radical method which Dr. Bryan suggests. We should not however proceed to external operation too soon. The attempt at intranasal treatment should be made first. As to the difficulty of entering the frontal sinus through the nose, I have done it a great many times, and have been sure that the probe reached the cavity. If the case has not gone to the point of caries, we should try the intranasal treatment first.

Dr. **DeVilbiss**—I am in favor of the external opening. I would like to ask the last speaker to give us his plan for draining the frontal sinus through the nose where there is empyema.

Dr. **Scheppegrell**—I have used a weak solution of peroxid of hydrogen to clear the nostril. No two cases are alike, and we must study the topography of each individual case. I try until I finally succeed in finding the natural channel, and then the probe is passed upward into the passage, then syringe with a gentle and continuous pressure.

Dr. **Cobb**—The difficulty of catheterizing these cases is almost unsurmountable. In experimenting upon anatomic preparations, if you take a probe and bend it to the extent necessary to reach the frontal sinus, you will find that the bend is too great to allow it to enter the nose. The evidence is lacking that the probe really does reach the sinus. The fact that pus follows it would prove only that the ethmoidal cells might be affected. Peroxid would cause bubbling in case it encountered any pus on its way to the frontal sinus. It is very difficult to tell whether you are actually in the sinus.

Dr. **Freudenthal**—I always try to benefit those chronic cases by intranasal treatment, but I have never succeeded, and finally have to come back to the external operation. I have one case on record which I have been treating for three years. I do not believe that entrance into the frontal sinus is as difficult as some of the gentleman believe. In about 15 or 20 per cent. of the cases with a very fine probe, you can enter the sinus easily.

Dr. **Myles**—I have operated on eleven cases externally, and dozens internally as I suppose all have. I originated the idea of taking out all of the bone between the central part of the nasal processes and the sinus, as near the floor as possible. I operated on several cases in that way, and kept them open for six weeks. These cases are all in fairly good shape with freedom from pain, though occasionally a little mucopus escapes. I abandoned this operation because I could not chisel away the floor of the sinus through this opening and it was difficult to enlarge the opening to the extent that I wished. So I adopted the method of Luc, I believe. I think his technique is by far the best of all. A few weeks ago I operated on two cases in which the cavities were full of pus and carious bone. I chiseled a large hole just above the orbital ridge, making a passage into the nose. In both cases I used soft rubber tubes and sewed up the external wound at once. I left the tubes in for about three weeks. The patients were relieved, and the one which was the more serious is now doing well. The other operated on after a general surgeon had done a double external operation, and I had to cut through a line of cicatricial tissue. The external wound was perpendicular, and healed in three days. The secret of success is in making a large opening into the nose. I am strongly in favor of removing the middle turbinal before operation and also the ethmoid bone which lies between the infundibulum and the upper part of the septum.

As to immediate closure of the external wound, the new membrane forms just as well in the closed dark cavity as in the light. I have tried to ascertain how the bare bone closed over in these cavities. In one case I reopened, and found the granulations very exuberant and softened by the atmosphere which passed upward in respiration.

THE CHAIRMAN—We must draw a sharp line of distinction between acute and chronic cases. Our reports and statistics are vitiated by dragging in acute with chronic cases. The majority of acute cases recover spontaneously, and the operation receives the credit of the cure. Intranasal methods should be carried out tentatively, especially where there is polypoid degeneration of the middle turbinal or the presence of actual polypi. The nose should be cleared and the anterior end of the turbinal removed if necessary. The operation by the intranasal method often does not result in a perfect cure, though it often relieves the headache and may establish better drainage. Intranasal treatment should not be carried on too long; in this way we may weary and discourage our patients. After having done what is really essential by intranasal treatment we should proceed to the external operation. I consider Luc's a great advance over previous methods in the external treatment of this disease. It will enable us to promise a cure if there is no caries, and it leaves no deformity. This operation has been well described by Dr. Bryan, but there are several points that were not quite clear to me. First, as to whether the incision is made exactly in the median line or deviated a little to one side; second, in reference to the modification of Luc's operation, in which there is an incision along the orbital arch and then a vertical one connected with it, with a view to lessening the deformity.

Dr. BRYAN—I invariably relieve the intranasal conditions as far as possible before resorting to operation. The removal of the middle turbinated body is sometimes necessary when the ethmoidal cells are involved. These cases can not be cured unless every bit of caries and pus is removed. After the cavity has been thoroughly curetted and the diseased tissue removed, I know of no reason why the patient should have an open wound until the so-called healing of the internal cavity takes place; this occurs just as rapidly when the wound is closed. As to the incision, my last case had a decided furrow in the median line and I followed this. It seems to me that Botey's method is a great advance over the median operation, though I have never tried it. The incision is described as commencing at the inner third and under surface of one eyebrow and then carried across the root of the nose, the integument and periosteum elevated, and the opening made just above the inner angle. The great advantage is that the rubber drainage tube is dispensed with. The communication between the sinus and the nose is a large one.

Gerson's Elastic Suspensory Bandage.—A soft elastic cloth, fringed on one edge, is covered with "York's rubber zinc plaster" and applied in epididymitis as follows: The scrotum is freed from hair and moisture and the bandage is applied around the empty scrotum below the testes, with the fringe up to prevent cutting. The scrotal skin thus drawn tight exerts constant pressure on the swollen testes and reduces the swelling. When the bandage becomes loose, as the swelling subsides, it is removed and applied higher up until complete recovery. In case of varicocele the bandage is removed at night. Frank and Lassar endorsed from personal experience the usefulness of this bandage.

MENIERE'S DISEASE, WITH REPORT OF A CASE.

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PHILADELPHIA, PA.

The employment of a term as indefinite as "Meniere's Disease" is now generally held to be, in giving title to the subject to which I ask your attention, may call for some explanation or apology, for quoting the words of Sir Wm. B. Dalby: "The term serves more frequently to mark ignorance of the lesion which occasions a series of symptoms, often analogous, but which are under the influence of very different causes." Such apology if called for must be the admitted absence of any designation more definite, and yet generally applicable to all cases of, or the various symptoms met with in, this disease, together with the great diversity of opinion which still obtains in the minds of the profession concerning it. Until we know the exact pathology and are able to separate other analogous diseases with which it may be confounded, it is wiser to hold to the name "Meniere's disease." Faintness, deafness and vertigo were the symptoms that especially engrossed Meniere's attention, and of these the latter seemed most momentous, and his investigations led him to believe that the lesions which produced it were restricted to the semicircular canals. That this is not the universally accepted opinion is proven by the widely divergent expressions of master minds engaged in the study of both its lesions and symptoms. Politzer and Lucae both report instances in which the semi-circular canals were absent or, by trauma, filled with blood, and yet the patients did not suffer from any disturbance of equilibrium. Gradenigo, Moos and Burnett believe the vertigo to be chiefly due to an extension to the labyrinth of a chronic catarrhal affection of the middle ear. Steiner of Cologne believes that the vertiginous symptoms result from lesions within the brain or its membranes, causing alterations in pressure. Baginsky, Randall, Dench and others regard Meniere's disease as a complex of symptoms, in which the cause can not be due to disease of the canals alone, but whether labyrinthine involvement, such as hemorrhage or serous effusion, is present in all cases is a question, as yet, not certainly answered. It may be caused by organic changes in the perceptive mechanism, or secondary to diseases of the conductive apparatus, or to blood conditions, or circulatory disturbances, to certain diatheses, or may be wholly reflex. Mettler says it is too complicated to be considered as a mere disarrangement of the function of the semicircular canals alone, and yet it may be considered that in true Meniere's disease these only are affected, and that aural vertigo may not be aural at all, except so far as having certain aural symptoms associated with the vertigo are concerned. Bezold has collected and reports forty-six cases of necrosis of the labyrinth, and notes that only twelve showed symptoms of vertigo.

Mackenzie says it is due to the effect of irritation of the terminations of the vestibular nerve. Finally, aural vertigo may co-exist with or occur apparently as the result of the most varied diseases, as for instance, hysteria, hystero-epilepsy, syphilis, vaso-motor disturbances, cerebral diseases, inflammatory conditions of the middle ear or growths upon the auditory nerve, gouty or rheumatic diatheses, pelvic and visceral inflammations, etc. And so I might multiply authors and recount opinions and cases, but enough has been given to show that we are dealing with an intricate and imperfectly understood disease, one whose manifestations seem entirely out of proportion to its lesions.

The following case is so typical that I believe its relation will be of special interest. The subject of it, Mrs. S., age 30, married, the mother of two children, the youngest born just one month prior to the commencement of the present illness. Her accouchement was normal and convalescence good. Family history excellent, with the exception of one brother who died at 33 of cerebral meningitis. She has always enjoyed good health, and is of a most bright and cheerful disposition, courageous and hopeful to the extent of light heartedness throughout her most distressing sickness. Manifesting a most intelligent interest in her own case, so apt in noting and describing her various symptoms or recounting her sensations, I requested her to write them out for me, and after hearing them, I think you will agree with me that a study from the standpoint of patient or laity, is not only an innovation but one of value and instruction:

"I went to bed on the night of January 6 feeling well but extremely tired, and the first premonition of approaching illness was on being awakened at 8 o'clock in the morning of the 7th, when I experienced the most violent noises in my head, like the pounding of iron. I had no dizziness or nausea during the forenoon, but on going down stairs received a slight physical shock as if the steps wavered, and came in contact with the feet too suddenly. This continued all the morning, and was accompanied by a feeling of great lassitude. I ate heartily at luncheon, had no pain in my head or elsewhere, although the noises continued without interruption, if anything, increasing in violence. A loud noise such as the water rushing in the toilet room, seemed to aggravate this condition, filling the head with noise. At about 1:30 P. M. I was seized with the acute attack of vertigo. I had just nursed my month-old baby when the room suddenly and with great violence seemed to turn directly upside-down, the floor approaching me and giving the sensation of an actual shock as if caused by an earthquake. I staggered to the door with my feet wide apart like an intoxicated person and called for assistance, then fell into a chair and life seemed to leave me for an instant. A glass of wine restored me temporarily and I reached the bed without assistance and lay down. Upon moving my feet on the bed I experienced a slight sensation of the bodily physical shock before produced on going down stairs in the morning. The physician arrived about 2 P. M. when the violent symptoms, especially vertigo, had somewhat subsided, but immediately after his leaving I was seized with a violent spell of vomiting, after which I arose from bed and went down stairs to be conveniently near some member of the family. About an hour later I was seized with a second attack of vomiting, this time accompanied by the most awful dizziness imaginable. The doctor likens this condition to seasickness, but I am sure that no seasickness could be half so terrible. The nausea, vertigo and vomiting continued during the afternoon and were intensified by the slightest movement of any part of my body, the room seeming to spin round and round with great velocity. I was utterly unable to rise to return to my room and was finally carried there in great distress from the disturbance and change of position. Doctor called again at 7 o'clock in the evening and ordered absolute quiet, and I retired and slept heavily until morning. Upon awakening, all the symptoms returned with increased force, the slightest movement of any portion of my body, excepting my hands, producing the most deathly nausea and vertigo, together with a feeling as if I were falling to the affected side (the left), while the room would seem to revolve rapidly in the same direction, and the floor or objects under or below me seemed to rise up violently against me. These symptoms as before were increased by any movement of my extremities, even the simple movement of the eyeballs being sufficient to produce it, and it was only by maintaining an immovable position on my left side with my eyes closed that I enjoyed the least immunity from these distressing feelings. They continued without abatement for a week or eight days, when gradual amelioration took place, though several days elapsed before I was enabled to actually change my position on the bed; this was done by keeping the upper part of my body thoroughly rigid and horizontal, the least raising of the head or trunk instantly producing the feeling of shock and dizziness, yet without such violent recurrence of nausea. The inhalation of strong ammonia salts during these efforts at change of posture seemed to partialy restrain the distress, especially the nausea. After the first week the vomiting ceased and in the next few days some abatement in the violence of the other symptoms, except movement, when the feeling of shock recurred as if the bed rose violently against me. This lasted during the entire three weeks I was in bed. In disappearing it seemed to leave the various parts of my body by degrees, beginning at the extremities and approaching my head. the last place to subside being the affected side between the shoulder and hip, where I still periodically notice it. On moving across it the bed seemed to rise like the ocean billows carrying me on their crest. As the vertigo grew milder the violence of this motion and the excursion of distant objects, seen through my windows, first grew less and less; nearer objects, as the confines of my room and its furniture, later, and finally my bed on which I rested. When convalescence had proceeded far enough and I could get up, I staggered considerably and pitched forward to the right or unaffected side. I was obliged to help myself by the bed and furniture, fearing to trust myself to others.

At the present time, six months since I was stricken, the noises continue with varying intensity, ranging from those heard on a quiet summer night, to those heard in a foundry. It is much less when lying on the affected side; and when lying on the other side, no matter what they may have been during the day or when up and about, they resemble the chiming of bells, and sometimes like the shifting of sand or rubbing of sand paper. External noises when near me sound abnormally loud, as for instance persons coughing or the tearing of paper, which are almost painful and startling. I am unable to distinguish the ticking of a watch when held close to the affected ear."

I do not know that I can add materially to this excellent description by my patient of the subjective symptoms of the case and will therefore address myself briefly to those that are more especially objective.

On first seeing my patient, some hours after the inception of the attack, the symptom most complained of was the tinnitus, and my next visit, some five hours later, the triumverate, tinnitus, vertigo and nausea or vomiting; fullness and loud thumping noises were felt throughout the head, while sharper, higher pitched sounds and the vertigo were referred to the left ear. The patient, a robust, plethoric woman, seemed now to have some slight increase of color in her face, rather than the pallor usually attendant on the invasion of this disease. Pulse and temperature were about normal throughout her illness. The temperature never arose above 100 degrees F. and the pulse ranged between 75 and 90. Early and repeated examination disclosed no change in the drum membrane. At my first visit hearing power in the left was almost lost. So excessive was the vertigo and so easily excited or intensified that no little difficulty was experienced in making thorough examination. A heavy step or a slight jar of the bed, or the suggestion of a change in position for the administration of medicine or examination, were met with the most vigorous protests from the patient, who in other sicknesses had proven herself most tractable. At my first visits after some efforts for the relief of the nausea and vomiting, with but little effect, calomel in divided doses was given until free purgation, combined with acetanilid and citrate of caffein, together with 1 gram doses of sodium bromid every three hours. The horrible tinnitus prevented her from sleeping, but this was fairly well overcome, by 0.65 gram of trional at bed time. On the evening of the second day, 0.016 gram doses of muriate of pilocarpin were administered hypodermatically every half hour until four doses were given, producing free though not excessive diaphoresis for a few hours, but making no impression on the disease. The next day 0.32 gram doses of potassium iodid, three times daily were prescribed, which in a few days were increased to 0.65 gram, and with the sodium bromid was the predominant treatment for several weeks. During the second week there were some manifestations of rheumatism in the extremities, which promptly disappeared on the administration of salicylate of colchicum. Absolute rest and perfect quiet were insisted on, and in the third week recovery was taking place, nausea disappearing first, vertigo and tinnitus subsiding later in the order named; both these latter, however, are still periodically present. a quick turn of the head, a violent motion of the body or a loud noise being sufficient to reproduce them.

Early in the attack Politzer inflation and the use of the Eustachian catheter mitigated the tinnitus but later, as Randall has pointed out in cases of internal ear disease secondary to disease of the conducting apparatus, intensified it. At the present time, six months after the attack, hearing power is improved, though for both high and low pitched tones it is still very greatly impaired, while loud tones of any pitch, especially if close, are painful. During the past month the bromid had been discontinued, and the iodid supplanted by Donovan's solution in ten drop doses thrice daily.

From observation in this and a number of other less typical cases, I conclude that it is a disease of more frequent occurrence than supposed by the profession at large, many of the milder forms and oft recurring cases being ascribed to cerebral troubles or gastric or visceral disturbances; the liver, long the scapegoat for human ills, is compelled to add this to its burden of offenses; especially is this so if occurring coincident with some indiscretion or irregularity of diet. The aurist is usually quick to recognize this disease even in its milder or atypical forms, but from the frequency with which I have found the ear ignored in attacks of vertigo, no reference by examination or otherwise being made to it, I think it is too often unrecognized until repeated attacks have worked irreparable injury. In the milder forms, rest in bed, restricted diet, attention to the excretory functions and the administration of bromid salts usually suffice. In gouty and rheumatic cases I have found salicylates or lithium salts, with potash and colchicum, most effectual. In the more severe cases, especially if at the outset they seem apoplectiform in character with full tense pulse, I would not hesitate to bleed freely and follow by arterial sedatives and absorbents. Quinin, as advised by Charcot, I have found useful chiefly in cases with sluggish secretions and malarial complications, when the addition of arsenic or dioscorea villosa increases its beneficial effect. All that has been said concerning the milder cases, or concurrent complications, will apply to prevention of recurrence of the attacks, for I think it is fairly well established that one paroxysm predisposes to others subsequently.

SOCIETY PROCEEDINGS.

The Quarantine Convention of the South Atlantic and Gulf States.

(Concluded from page 433.)

February 10—Morning Session.

The first paper read was

QUARANTINE AS IT AFFECTS PERSONAL RIGHTS,

by ex-Lieut. Gov. **Shands** of Mississippi, now professor at the law department of the State University. He discussed the question as to the extent laws can go in their effect upon the constitutional rights of the citizen, quoted from the Constitution as to the abridgement of the rights of the citizen, and said that any enactment interfering with the rights would be set aside by the courts. He also referred to a number of legal decisions touching upon the subject of his paper, and cited a Michigan case, emphasizing the position he took that laws bearing on the rights of citizens would not hold. He cited opinions, however, that quarantine laws were constitutional when the necessity of the enforcement of the provision abridging personal rights was apparent and necessary to public health.

Hon. C. H. **Austill** of Spring Hill, told his experience with the yellow fever refugees last year, and how few personal rights individuals had during the quarantine. Mr. Austill thought, however, that if legal and reasonable quarantine laws were enacted it was the duty of the people to obey them. He deprecated very much the character of the quarantine laws established and operated last year.

A. L. **McLeod** of Selma, said that the fever was a great evil and the quarantine also an evil, a lesser evil than the fever, perhaps a necessary evil; but a quarantine regulation should be a reasonable one. As it was last fall, in many instances it was a species of absolutism and despotism. He in the quarantine campaign last fall cited instances where the regulations had been extremely autocratic and despotic. He thought that the convention should recommend the passage of laws that would deprive a State, city or town of the right to quarantine other than infected places.

Hon. F. G. **Bromberg** of Alabama, thought the remedy for the mischievous features of quarantine was the proper education of the people. He said that in the end the courts would have to pass upon these rules and regulations. He thought that there should be a bureau of health at Washington the same as a Department of Agriculture. True ideas should be promulgated all through the country, and the people would be better posted and know better how to act.

The next subject of discussion was

NATION, STATE AND LOCAL QUARANTINE; HOW BEST TO ADJUST THEIR RELATIONS.

A paper was read on this subject by Dr. W. H. Sanders, State health officer of Alabama. He took the position that local and municipal quarantine laws must be made subordinate to those of the sovereign State. The State must be the judge of the reasonableness of the quarantine laws of local and municipal government, wherever they conflict with those of the State. In her own borders the State should be supreme. Then assign to the National Government the dutes of its own sphere. Let there be established a national bureau of public health. Let the members of it be from the different States, so the body could be in touch with all the different States. Let this body create rules and regulations in times of pestilence, and all the States would feel it incumbent upon them to support its laws, as all the States would have a voice in these rules. Dr. Sanders then presented a map of Alabama to illustrate the system he advocated. His plan was to have a health officer in every county, thoroughly familiar with the topography of his county, theoretically if not practically familiar with all infectious diseases, familiar with all the roads and avenues of traffic, and ready to act a moment's notice. The same to be with reference to the State Board of Health officer, except that he only familiarize himself with all the towns and cities near the adjoining States. In other words, to have a zone around the State guarded by the State health officer, assisted by his co-workers, so that the people within this zone could pursue their vocations undisturbed by the inconvenience of local and municipal quarantine regulations. Dr. Sanders, with the aid of the map, elaborated his plans in detail. He outlined his plans especially in opposition to a National quarantine system with one man from Washington in times of pestilence directing from that distance all the quarantine operations of the South. The necessary appointment of hundreds of thousands of quarantine officers at a short notice, officers, too, over whom the people of the South would have no voice in selecting. He predicted that such a course would result in trouble and a chaotic condition of affairs.

Hon. F. C. Zacharie of New Orleans divided the quarantine ideas into four classes. First, the people who believe in the absolute States rights, the second in the Federal sovereignty with reference to quarantine, a third class who believe in local and municipal quarantine, and a fourth class, composed generally of merchants, who would put the quarantine regulations upon a business basis, and would waive constitutional rights and home rule and depend upon the highest authorities to enforce quarantine regulations. Mr. Zacharie reviewed at length the great trade of the Mississippi Valley, how it was acquired and what it meant to the South. He intimated that Federal control of quarantine would be putting the South at the mercy of its mercantile enemies, and how easy it would be for the government to send down an expert to diagnose a case of fever as yellow fever and then close up several ports of the South for six months to the vast commercial injury of its cities and people and to the delight of the commercial enemies of the South. He referred to the malicious reports that had been circulated in the last two or three years against the South. The report, for instance, that grain which came to New Orleans and Mobile was damaged or ruined by reason of the dampness, and which report was found to be absolutely untrue. He believed that the Federal control of the quarantine would be disastrous to the southern business. He believed, however, that the Federal Government should define a reasonable quarantine and see that all vessels coming from infected ports were thoroughly disinfected and fumigated. Mr. Zacharie advocated forming a central society composed of delegates from all counties of the State to meet together and discuss hygienic and sanitary matters and give health information throughout the State, thus educating the people along that line.

Mr. Farrar then offered the following resolution:

Resolved, That it is the sense of this convention

1. That it is the imperative duty of the Congress of the United States, under the power to regulate commerce with foreign nations and among the States to establish immediately a general system of maritime quarantine, and in pursuance thereof to locate on the Gulf and Atlantic coasts, at safe and convenient points, as many quarantine stations as the exigencies of commerce may require, to which stations all vessels coming from infected or suspicious ports and bound to any port in the United States should, before presenting themselves for entry at such ports, be required to repair to and perform quarantine, according to uniform regulations, putting all the ports of the United States on an equality, reserving to such port, however, such reasonable right of detention, inspection and fumigation as the local *bona fide* health laws of such ports, not amounting to regulations of commerce, shall require.

2. That it is the imperative duty of the Gulf and South Atlantic States—Texas, Louisiana, Mississippi, Alabama, Georgia, Florida, Tennessee and South Carolina—under paragraph 3, of section 10, of article 1 of the Constitution of the United States, to obtain the consent of the Congress, and of the Congress to give such consent, to an agreement or compact between themselves for the establishment of a uniform system throughout these States of local quarantines and health laws, based on scientific principles and as little restrictive of traffic, transportation and intercourse as the health and welfare of the people will permit.

3. That in order to enable the Congress to have complete control over the localities selected for its quarantine stations, the States ought to, under paragraph 17 of section 8 of article 1 of the Constitution, to cede their jurisdiction to the Congress over all such localities.

4. That the line of demarcation between these State and Federal quarantine laws ought to be clearly drawn, so as to prevent all conflicts and jealousies between the officials charged with the execution of the same.

5. That all of these laws ought to be executed in a mutual spirit of conciliation and respect, so that by their combination and co-operation the safety of the people, which is the highest law, may be secured.

They were referred to the committee on resolutions.

Dr. J. B. Elliott discussed the paper read by Dr. Sanders, and agreed with him in many things, but did not think Dr. Sanders valued sufficiently the most important thing in the convention, which was, in his opinion, "Who shall make the laws?" At present the quarantine laws are contradictory and unsatisfactory. He thought the convention ought not to adjourn until it had passed an explicit resolution with reference to those who should make the laws. A solid, durable system of quarantine laws, he thought, should be framed by a representative body, composed of delegates from each State, to whom should be delegated the power of making those laws. Under the present quarantine system the laws are arbitrary and despotic, and are naturally resisted by the people. Congress is not the proper body to make these laws. A presidential appointee can not make satisfactory laws. Dr. Elliott thought a legislative body ought to be appointed, composed of representatives of the different boards of health of the different States, to meet as often as necessary until a perfected system of sanitary and quarantine laws could be secured. He thought Congress should be appealed to on this question at once.

Dr. E. H. Shall of Birmingham thought the great question was how best to keep yellow fever out of the country. This, he claimed, was the first principle, the first matter to be considered. He thought that regulations, tyrannic if necessary, should be adopted by Congress to prevent the fever from coming into this country. He thought that the Federal, State and municipal governments should work in co-operation to this end.

Dr. Cunningham of Alabama spoke of the importance of the convention and of the efficiency of the medical profession had they the means and power to handle yellow fever when in their midst. He maintained among other things that if Cuba were bought or taken by force it would greatly minimize the danger of infection from that island. He deplored the fact that Southern boards of health, the peers of any in the United States, had no money to fight yellow fever, and he believed that these delegates should demand the necessary money from Congress to carry on that work. He paid a high compliment to the Marine-Hospital Service, and thought the whole matter should be turned over to them, with the necessary money from Uncle Sam's treasury to do the work.

Dr. Carter, in response to references that had been made to the Marine-Hospital Service, gave a short account of its workings.

Mr. Russell thought that Federal and State quarantine systems could be drafted so that they could be in operation in the same State, even in the same town, just as they do now with the Federal and State courts and laws, without conflicting.

Harry Pillans of Mobile said he had been impressed with the warning given by Colonel Zacharie of the Federal supervision of maritime quarantine. He thought, too, that it might operate to the commercial disadvantage of the South. He said that Dr. Carter had answered in response to a question that even now there was a difference in the detention of vessels at ports north and south of Baltimore in favor of the North.

Mr. Clarke of Mobile spoke of the matter of a board appointed by Congress to make quarantine laws. He said that Congress had not a particle of power to delegate to any other body the right to make laws. They might give that board a wide range, but could not delegate to it the power to make laws. As to Congress making an unjust discrimination against the South in the matter of the Federal supervision of maritime quarantine, Mr. Clarke did not believe it. He said if Congress had desired to discriminate against the ports of the South it would have done so by simply withholding appropriations, when in fact in the last ten years it had spent millions and millions of dollars on the ports of Galveston, New Orleans. Mobile and other Southern ports. He did not believe there was much diversity of opinion in the convention as to a national quarantine service to protect the Southern coast.

Professor Shands said in reply to Mr. Clarke that he thought that Congress could empower Dr. Elliott's proposed board of health office to make quarantine regulations as well as it now empowers the Secretary of the Treasury to make the regulations.

Col. Zacharie said Mr. Clarke's reference to appropriations for the South had been most unfortunate, and went on to tell how the East had always been given the preference in the matter of appropriations; how five times as much money had been spent giving New York three waterways as had been spent on the whole Mississippi River, draining twenty one States. As to the present appropriation contemplated for the Passes, it was seen that the very men in Congress who sneered at the proposed appropriation were the ones who were from the East, interested in the appropriations for the East. He was sorry to say it as an American citizen, but the money powers of the East controlled the Government in the matter of appropriations for the East. He also alluded to the Union Pacific sale by the Government, and how the public press had, in that instance, prevented fraud by the Government.

Mr. Clarke, in reply, said that if Col. Zacharie would examine the record he would see that there had been more money spent by the Government on the Mississippi River in the last ten years than on the New York harbor and waterways leading into it in the whole history of the Government.

Mr. McLeod of Selma offered a resolution to the effect that every State should pass laws with reference to quarantine and call upon the authorities of the different counties and towns to enforce them. The object of this was to prevent the shotgun quarantine.

Dr. Moody of Mobile classed Dr. Sanders' system as a keynote of the situation.

Dr. Kohnke replied to what Mr. Pillans had said about discrimination practiced against the South. He said there was a difference in the time of detention of vessels, but it was agreed to at a conference of medical men at which the South was represented. Had it been the same time for detention as in the South it would have been really a discrimination against the North, as yellow fever is much more easily introduced in the Southern than in the Northern ports.

Dr. Robbins of Vicksburg made a short talk in favor of national quarantine, and said he hoped the convention would not be turned from that by the appeals to prejudice and fears by the legal gentlemen.

Afternoon Session.

The Committee on Resolutions made a partial report against the bill in Congress now pending against vivisection. The committee reported as against the bill, that is, in favor of vivisection. It was discussed by Mr. Bromberg and Mr. Clarke of Mobile, Dr. Hamilton of Chicago and others. Mr. Bromberg opposed the passage of the resolution on the ground that it would be an officious interference with Congress; that if the bill in Congress was not passed, every "Tom, Dick and Harry" in the country with an "M.D." to his name would be engaged in vivisection. Dr. Hamilton of Chicago explained that the resolution was in the interest of science and ought to pass.

Mr. Clarke thought the convention had its hands full in trying to advise the Senate committee on the quarantine question without going out of its way to offer advice on the vivisection bill. He thought the convention should devote itself to quarantine.

Dr. Horlbeck thought the matter perfectly germane to the quarantine question, as it was on the matter of the investigation of the yellow fever bacillus.

A long, uninteresting and general discussion followed, the resolution being finally adopted.

The national quarantine discussion was then renewed. Dr. Robbins and Mr. Falkner again made speeches in its interest.

Hon. Leslie Sheedon of Mobile said that the United States has the right to regulate maritime quarantine and the communication between States, and he thought there was a field for the operation of both the United States and the State Governments in which to work. He advocated Dr. Sanders' plan to be recommended favorably to Congress.

The report of the Committee on Suffrage was then taken up. It gave to the South Atlantic States and Southern States five votes each, and to the other States two votes each, voting to be on the unit rule. There was a long debate on the question as to whether the unit rule should prevail or not. When the vote came the unit rule was rejected by a vote of 56 to 34.

Evening Session.

The first paper read was

A NATIONAL BUREAU OF PUBLIC HEALTH,

by Dr. U. O. B. Wingate of Milwaukee. The Doctor presented a concise and clear argument for a national bureau of public health, which he advocated strongly as a means to help the South in controlling the yellow fever. He said the Marine Hospital Service had its hands full with its own work, and could not give the proper time nor consideration to this matter. Dr. Wingate thought that in addition to a national system of sanitation and quarantine there should be the same systems in the South in towns and cities to work in harmony and co-operation with the national organization.

Dr. Drake also in a paper on "National Quarantine," deprecated some of the statements that had been made by able constitutional lawyers against the Federal control of quarantine as well as some of the statements against the Federal Government itself. He began by a wholesale roast of the quarantine regulations last year, drew a picture of the general conditions, told of the failure of the local authorities in many instances to keep out the fever. He told of the stoppage of mails, burning of bridges and other lawless acts, and then in a very strong argument, advocated national quarantine hereafter to have control.

Dr. Horlbeck's paper was mainly a denunciation of the Caffery quarantine bill, as pernicious and likely to do a great deal of damage if passed. He intimated that it was made in the interest of commerce instead of public health. He said also that it gave undue rights and privileges to the National Government. He closed with the statement that national quarantine should be co-operative, not autocratic.

Dr. Elliott presented an outline of a quarantine plan to be submitted to Congress. It was on the line of the quarantine council which he had advocated during the day. He presented it as a resolution and it was sent to the committee on resolutions without discussion.

Mr. Farrar (by request) offered the following resolution, which was loudly cheered and sent to the committee on resolutions:

"*Resolved*, That the quarantine convention of the South Atlantic and Gulf States invite the attention of the Congress of the United States to Senate bill No. 2680, introduced by Hon. Mr. Caffery of Louisiana, as not conducive to the sanitary interests of the country. They do not regard the bill mentioned as necessary or wise. The powers proposed to be confided to the Secretary of the Treasury are extreme and dangerous. We, therefore, respectfully recommend that said bill do not pass."

New Jersey State Sanitary Association.

(Continued from page 436.)

George F. Loring, Architect, of Boston, Mass., read a paper on

SCHOOL ARCHITECTURE.

He said: At the request of your president I propose to give you the result of my experience in school architecture. The relation between architecture and hygiene is close and vital. Building, the parent of architecture, owes its creation to the desire of men for more hygienic shelter than was furnished by forests or caves. After the erection of his own hut his belief in the humanity of the gods led him to provide the same comfort for them while his reverence caused him to change from mud to wood and to clay and to stone. By the erection of temples the esthetic element was introduced and developed. Architecture is thought of only as proportions and detail.

Why human energy should take this direction instead of developing the physical part of man may be found in the superstitious regard for the body itself. All the functions were thought to be controlled by superhuman forces; the mind being controlled by physical and religious abstraction tending to turn the same away from the body, could but produce its own embodiment in architecture. The greatest achievements of architecture have always been identified with the most mental and spiritual activity. The greatest triumphs have been in its application to the arts and industries. If our architecture is true it will be influenced by our activities and partake of the influence of the time.

Our modern steel buildings with the improved mechanical and scientific apparatus, to a great extent typify the national characteristics and the life of the times. A true architect is born, not made, and he will not cast aside these facts or it will be looked upon as absurd.

Hygiene has been the last of all branches to develop, due to superstition and lack of knowledge. The microscope and the study of specialists has brought to our minds facts that have been concealed and laid for us a foundation on which to build; the application of these principles as applied to building of schoolhouses is the subject here treated. In this northern climate and congested population the average individual spends at least 90 per cent. of his entire life in doors. The sanitary conditions of our buildings therefore must exercise a powerful influence on the general health. The best means for a study of these problems is afforded by the public schools.

The large number of people of practically the same age, for the same length of time, under the same conditions placed in a given area, make it possible to deduce much more reliable data than can be done in any other way. Then also, children as a rule are free from chronic diseases or other diseases found in adults. Some one has said that a child may be regarded as a very sensitive hygienic instrument responding quickly to change and environment. Following this line of thought I have made a study of school construction from the standpoint of hygiene as well as architecture.

Sixteen years ago school buildings were erected with the idea that all that was required was the housing of so many pupils, protection from the weather and so much floor space, all at the least possible cost. At about the time mentioned I began an investigation of this subject, being assisted by a bright man who was principal of a school. Much has been written on this topic but my remarks are based on actual experience in this line.

Given a committee of fairly intelligent men, the first business instead of the last, which is the usual method, should be the selection of the architect. This should be done before any site for the proposed structure is purchased. The location at a suitable point within the school district, for convenience and accessibility, is acknowledged. The exposure of the school building is of the utmost importance and preferably the lot should face either to the north or the south; the class rooms can then be located on the southerly side of the structure without too long corridors.

We are advocates of the sun buildings for class rooms; we do not agree with those that advocate northwest or northerly exposure, when we consider the number of days in the year when the sun is obscured, that the sun is nearly vertical over us at its highest point in the summer time, that for spring, fall and winter days the sun is necessary for health; that east and west exposures in the morning and afternoon are as bad, in the opinion of those with whom we differ, as the southerly, and that the amount of fuel necessary for warming fresh air for northerly rooms is more by at least four tons per room than for southerly ones. We all know the agreeable sensation of direct sunlight. Sunlight is the only disinfectant which sustains man while it kills the microbe, and you can not but agree from the standpoint of health and economy that our conclusion is correct. We believe that the body is of as much importance as the eye, with the windows properly screened against intense sunlight by use of curtains to each window in two parts, with the rolls at the meeting rail, the top running up and the bottom one down, the light can be controlled.

All windows in class rooms should be square-headed without transom tops, which can not be properly curtained, and without the bar over the transoms, as they throw strong shadows over the desks. The light from the upper part of the window is most valuable and should not be made circular or in the gothic style. Double windows or four runs of sash should be built in on the cold sides of class rooms. They have the advantage of preventing the frosting of the glass surfaces and chilled air will not flow downward on the bodies of pupils that happen to be seated in the outer aisles. With double windows the wind pressure on the walls of the exterior does not affect the movement of the air in the heating and ventilating ducts. The interior lighting of corridors and location of stairways can be disposed to best advantage with the style of the building mentioned. The space surrounding a building and within the boundary of the property lines should be at least twenty feet. A lot where the grade of the land falls, or so graded as to fall to the rear is much the better for the basement, and for access to the same.

Except for high schools, no building should have more than two stories of class rooms. By spreading the building over the ground, instead of vertically, we gain in breadth architectural effect, lessen the danger to health of young persons by loss of energy climbing stairways, and lessen the danger from panics; the additional cost of a building two stories high as to one of the same capacity three stories high is so small that it is not worth considering.

In fixing the heights of stories we are governed some by the amount to be expended; the proper height of basement should be nine feet six inches to ten feet, of first story thirteen feet and second story twelve feet. The light in rooms on the second story is always superior to that on the first and we therefore increase the height of the story and of the glass surface of the first story to equalize the same; in any event the window heads should be finished to the top so no shadows can be thrown on the ceilings. The sill of windows should be three feet four inches from the floor. The proportion of light to floor of class rooms should never be less than one square foot of glass surface to six square feet of floor surface, and from experience we can say that this holds good for rooms thirty-eight feet wide, lighted from one side only. Within the limits of a city where adjoining buildings are about twenty feet from exterior walls we should increase our glass in proportion of 1 to 5.

Every room should receive the direct rays of the sun for some part of the day. The special arrangement of curtains before mentioned we consider better than dusty and rattling shutters. The direct rays can be wholly or in part excluded if desired. In direct sunlight the rooms up to the limit mentioned are sufficiently bright to allow the reading of extremely fine print without exertion; at other times the shades are not required.

The worst light is from the front. The best light is from the left side or left side and back. As the teacher suffers from the light as well as the pupil, and is placed necessarily in the opposite position, we believe that the desk should be placed on the floor, in such position as may suit the individual taste; supplemented by swivel chair is convenient and comfortable. The ceiling plays an important part in the distribution of light and should be white. We have used stamped metal ceilings painted white, but they are objectionable on account of the many shadows they throw; the paint soon becomes dull and is not the equal of a perfect plaster ceiling for reflecting light; the walls are better for the eye if tinted. Nothing can be better for blackboards than natural slate, but the joints should be cemented together after being placed; the chalk receivers should be placed at a height of two feet two inches from the floor for small children, and not over three feet four inches for high school pupils. Blackboards should not be placed between windows, and from thirty feet to forty feet in length is sufficient for any class room. Dustless crayons should be used; if common ones are used the board should be wiped off with a damp cloth, and not with a dry brush. Slots in the top molding of the boards should be left for cards. Picture moldings should be placed everywhere.

The number of pupils to a room can only be decided by the committee in charge.

The sizes of rooms for good seating depends on the size of the desks and ages of the pupils. The blackboard aisle should be three feet eight inches, the exterior aisles two feet four inches wide, inside aisles never less than twenty one inches. An average desk twenty four inches wide, fifteen and a half inches deep, with chairs thirty one inches from back to back, seating grammar school pupils up to the age of 14, allowing space for teacher, will make a room twenty-six feet six inches by thirty-four feet three inches and allow fifty-four seats when fronted the narrow way, or fifty-two seats when fronted the wide way of the room. We find by careful adjustment of sizes of seats and ages of pupils that it is not necessary to allow twenty square feet of floor surface per pupil. As most authorities state they do not make any allowance for the age and place small and large on the same footing, we estimate fifteen square feet for the primary, seventeen square feet for grammar and twenty square feet for high schools. This makes quite a difference in the area and cost of a building. The adjustable desk with adjustable seat having a back of one curve seems to us the best and most comfortable for pupils. In a room longer than thirty-six feet it is difficult for a teacher to speak in an ordinary tone of voice so as to be clearly heard by the pupils in the rear row of seats.

Corridors should be without obstruction and never less than eight feet; ten is better. Stairways should be six feet wide and each flight broken with a landing. These stairs should be as near the exits as possible and also equally placed at each end of the building. No portion of entrances, halls, corridors or stairs should be so planned that one teacher in charge of a floor can not command a view of the same for maintaining discipline.

Stairs, if of wood, should have stringers or supports of heavy hard pine, or of iron. If of iron, flat pieces of sheet lead should be sunk in each tread or sinkage filled with asphalt. The rise should never be more than seven and a half inches for each step with eleven inch treads.

From each class room there should be two doors connecting with the corridor; these doors should be hung to swing both ways; they should be fitted with new spring check, so whichever way they swing they stop on the return, at the center; glass panels in these doors are necessary.

If proper stairways are put in, there is no necessity for fire escapes on the exterior, any more than it is necessary to put up unsightly ventilators on the roof if proper system of ventilation is installed. If the building is laid out as described there can be no dark places. The details of lunch rooms, laboratories, specimen rooms, principal's office, teachers' rooms, libraries, superintendent's office, supply rooms, are matters for consultation. The female teachers' room should have toilet conveniences so that the girl pupils could use it for a sick-room; lockers for the teachers should also be placed in that room.

Laboratory walls should be of brick if the building is of brick, and finished in enameled brick or enameled paint; floors of the same should be of granolithic or asphalt. Floors of basement should be of granolithic; concrete is cheaper and also poorer in wearing qualities, as it disintegrates; much of the dirt on the floors of corridors and class rooms is from this source. The boiler room floor should be paved with brick and grouted in cement; the ceilings of basement where wooden framing is used in floor above should be wire lathed and plastered and is a protection against noise, dirt, drafts and fires. The best flooring for upper floors is selected dry maple or cone-grained hard pine, and the boards should be narrow, matched, and blind nailed. If nailed in the ordinary manner every nail hole and crack is a place for deposit of human and animal wastes. The floors may be covered with two coats of elastic varnish that will not mar or scratch; they should not be oiled as that turns hard pine black.

If wooden construction is used for floorings then the same should be protected against fire by use of salamander fireproof sheets put down between the under and upper floors with lapped joints and coated over with a solution of that make. If the partitions are of wood, then they should be fire stopped at each floor and ceiling. If brick walls are furred off for plaster and finish, the same should be fire stopped at top and bottom in each story. All staircases should be carried by brick walls and they should not be laid out in plan so as to be over the boiler room.

Concrete-expanded metal lath and steel construction for fireproof floors would cost about seven cents per square foot more than wooden construction and we hope the time will soon come when committees will be willing to pay the additional cost.

In the disposition of the basement plan the space instead of being filled with pipes, ducts, boilers, piers, etc., can be so planned as to have good rooms available for wardrobes, if desired, for toilets, manual training rooms, janitor's room, bicycle rooms, lunch rooms, etc., whereas, in many schools this portion of the building is absolutely worthless and can not be utilized, show lack of knowledge and experience on the part of the designer.

Assembly halls are usually placed in the roof space for economic reasons. The first or second floor would be safer and more convenient; if located on the second floor by providing wide openings to each adjoining class room at the platform end of the hall. The accommodations can be increased by using these class rooms, and allow of a smaller hall if necessary. From motives of economy the hall may be used as class rooms and arranged with folding partitions; the platform may be in sections, removable and a storage place provided. Quite often we arrange two class rooms so that they may be thrown together, making one large room; if on first floor they may be used for town purposes, etc. Regarding acoustic qualities of class rooms with height of from twelve to thirteen feet, the proportions of 26 x 34 or 26 x 32 are always good.

Authorities differ regarding the width of class rooms and quality of light; one says width of room equals two and one-half times top of windows from top of desks; this would give about twenty-six feet width for thirteen foot story and twenty-four feet width for twelve foot story. When there are no limitations the nearer this rule is adhered to the better the result.

The wainscot work of class rooms and elsewhere would be more vermin and dust proof if made of hard plaster painted four coats of lead and oil with soft gray color and finished without a gloss. Standpipes and fire hose should be furnished where the appropriation admits of it. The interior finish should always be of ash or oak, and the additional cost for ash over whitewood (which is so often used) would never be known if incorporated in the specifications. The style of the same should be simple and free from too many projections to catch the dust.

Wardrobes.—As contagion is most likely to occur from garments, which being porous, absorb and transport gases, microbes, etc., it is necessary to have two wardrobes properly arranged on each floor, one for each sex if appropriation permits. The latest improved wardrobes set up in separate rooms or in corridors either in the basement or on each story is made with separate stalls of three to four inch by three to eight inch channel irons covered with three to four inch half oval with open spaces up ten inches from the floor and the top five foot four inches from the floor, between each stall and forming the back between two sets of stalls on these frames filled with one and one-half inch diamond mesh No. 9 wire. At the bottom is a shelf for rubbers, two rings and cups for umbrellas with hangings on each side, none on the back. They are about one foot three inches deep and one foot six inches wide. The cost of this style of wardrobe put up is about $1 per hanging, as there are two to each stall, $2 per stall. In estimating the number of stalls that can be placed in a room and have plenty of freedom for aisles, etc., allow two square feet per hanging. We believe the best place for wardrobes is in each corridor, provided it is wide enough. There will be no traveling up and down to the basement. If separated for sexes there is less crossing of files or pupils, being more direct, cleaner and just as well ventilated.

Wardrobes seem to be the most difficult part of school sanitation, there being many advantages in the open method by placing them in wide corridors or in the basement, unless an appropriation large enough for special rooms with a thorough circulation of fresh air, is provided. The advantage of having them in the corridor is that the teacher in command of that floor maintains the discipline.

Sewerage.—Where there are no sewers we unhesitatingly use the cremating closets, but these should never be supplied with foul air drawn from class rooms above; there should not be a connection of any kind between closet room and rooms above. In no case should the wastes of sinks and bowls or private toilets be discharged into these vaults; the wastes should enter a cesspool, preferably a double cesspool a tight one for solids and a leeching one for liquids. The best urinal is of slate with the dry air system, using no water. There should be a connecting waste from the trough and a connection made to the cesspool drain. We are sure from the experience we have had, that these, when properly erected, will last forever without repair and that they are free from odor; if an earthen urinal is desired, the best is the Stevens' patent, ventilated from the bottom of the bowl and automatically flushed; slate is the best material for slabs.

Water-closets for pupils' use, where there is water carriage, should be with automatic seats. The Hellyer Oxford Closet, a moderate priced vitreous earthernware product of this country, has lately been fitted with a perfect seat, absolutely sure in action, and not likely to wear in any part; these closets set with a space of from twenty to twenty-four inches between the back of the slab and wall will allow access to all the pipes, points, and tanks; nothing but the closet is exposed to view; the closets are set separately with separate tanks, enclosed in ash, slate or marble partitions six feet six inches high; doors should stand open in the closet with spring attachment and with spaces at top and bottom; each closet should have seat ventilation, and the toilet-room should be supplied with fresh warm air and a foul air extracting flue. No metal ducts for fresh air supplies to class rooms should be allowed to cross the ceilings of these rooms, as the joints in the metal work and around brick openings can not be made tight, and the fresh air becomes foul. There is no particular advantage in placing the toilets in an annex with cut-off outside the building, except that it is more convenient to have these on a level with the class room floors, in which case the building will be more costly.

The thick porcelain slabs with backs are the neatest and best device for drinking fountains in the corridors; or, if economy is the word, you can obtain an iron fountain with push button instead of a faucet, and when painted white is neat, serviceable and cheap. Each pupil should have an individual cup or glass, and place for the same should be provided either in individual wardrobe, stall or desk.

The principal's and teachers' rooms should be fitted with water-closets and bowls of approved make.

There should be two sill cocks and supplies at the ends of the building with shut-offs inside and a hose bibb and sink for use of the janitor in the boiler-room. The practice of making one large foul air extracting flue answer for two or more rooms should never be allowed, it being a conductor for sound and foul air between all parts so connected. Each room should have an independent outlet. . . .

Cost of school buildings.—As we understand it, structures for this purpose are not to be erected as monuments to committees or the architects, they should be business buildings, neatly and plainly treated for the purpose, but not necessarily built like factories; it does not cost much to get breadth of treatment and architectural effect in a modest way. Unfortunately we have always been limited to cost. We can honestly say that the appropriations have never been exceeded; to the best of our ability we have included as much of the above points as the money at our command would allow. For high schools of brick and stone the price per cubic foot of contents varies in different localities from 11.2 to 12.5 cents; per square foot of ground covered for two stories of class rooms from $5.50 to $6.50, for three stories of class rooms $7.50. The cost per pupil averages $160 to $175.

The Montclair high school erected by us in the year 1892 cost as follows: per cubic foot 12.3 cents, $6.42 per square foot of area of first floor, or $160 per pupil, and accommodates 605 pupils. The most expensive schools we ever erected cost 15 cents per cubic foot, a limit which there is no necessity for exceeding. Brick grammar schools without assembly halls cost per square foot of first floor area from $4.50 to $5.50 and from 9.8 cents to 11.34 cents per cubic foot, and per pupil from $68 to $75. Brick grammar schools with assembly halls will cost about $80 to $85 per pupil. Wooden school buildings without assembly hall cost from 7 to 8.4 cents per cubic foot, $3.25 to $3.78 per square foot of first floor area and from $50 to $60 per pupil. Wooden school buildings with hall cost per pupil about $68.

The above prices include the building complete, including heating, ventilation, sanitary appliances and architects' services, without furniture. In estimating the cost of furniture, using adjustable desks of birch, adjustable seats, teacher's desk, swivel chair, extra chair, clock and shades, the cost per class room for primary schools is $167, for grammar schools $200, for high schools $250.

Dr. O. W. Braymer of Camden read a paper on

INFANT MORTALITY AND ITS CAUSES.

He said the frightfully great mortality is a well-known fact. The first year of life is the period of the greatest loss. Fifteen out of every 100 die; four times as many die in the first as in the second months; and almost as many during the two years after. One-tenth die before the eleventh day. Winckel says that 10 per cent. die before the eleventh day; one fifth to one-fourth before the end of the fifth year; 20 per cent. before they are six months of age. What is the cause? There are several. Physical defects at birth; feeble system; proneness to contagious diseases; unwholesome surroundings; improper food; defects due to defective ova; maternal impressions or injuries, and diseased parents. Much can be done to reduce this rate from contagious diseases. The last causes we can readily see how to relieve. Congenital defects should be prevented by proper dress of the mother, as tight corsets or clothing prevent the expansion of the uterus during pregnancy. Injuries cause many defects, as blows, etc. Syphilis or tuberculosis also produces feeble offspring. Again, when births are too frequent the children are not strong and are made feeble by improper nutrition, and want of care. A blot on the enlightenment of the age is to allow felons, the syphilitic, the tuberculous, the weak-minded, etc., to propagate without restriction. These bring into the world children of no utility. Man is below all beasts save monkeys in having no control of his sexual desires. In rearing blooded animals, we expect to have the birth at the proper time of the year, of pure stock, and in a first-class condition. It is not so with the human being: no thought is given to this; children in the best families are not looked upon with joy. The authorities do not take enough interest as to hygiene of the home, and all that will conduce to the production of healthy children. The common people are not taught as to the value of cleanliness, fresh air, proper clothing; all this should be impressed upon them by persistent education along sanitary lines. It is difficult to make people believe that children should be dressed not as to season, but according to the temperature. There should be an interdiction of the old nurse's bottle with the tube by every board of health. This is the source of much injury to nursing children, as causing bad food to be taken during the time of nursing. We should go everywhere and teach morality, cleanliness and common sense; into the school room and teach sanitation in its fullest points; how to live and how to die; teach physiology of life, purity and health. We must not allow pride and the prevailing fashion and public opinion only to govern the growing child. Then the legislature must enact laws to prevent marriages of cripples, degenerates and the unhealthy. The conscientious minister must assist from the pulpit; he should be a physical exponent of the hygienic laws. The legal profession must assist by enforcing the laws so enacted; all can help by teaching hygiene and sanitary science, and the great reform can be quickly and easily obtained if the National government will heed the crying need and give us a Department of Public Health.

(*To be continued.*)

SELECTIONS.

Vaccinia Insolitata. Dr. Lamb reports two cases of unpremeditated vaccination, as follows: "On Nov. 21, 1897, I was called to see a man and his wife, having six weeks previously vaccinated their child. The parents had during this period been attending to the child's arm, which was discharging some clear fluid, and the vaccination marks were covered with brownish crusts. No definite history of inoculation could be got; but on several occasions the husband had attended to the child's arm before getting out of bed, and had then urinated without previously washing his hands. On November 17 he complained of some pain and tenderness in the groin and also noticed some swelling in that region. He discovered some marks on his penis but did not take much notice of them. On the same day his wife had pain on micturition, but had no vaginal discharge. On the 18th the swelling was more noticeable and the pain and tenderness were much increased. His wife also had a small swelling in the right groin. On the 21st both husband and wife were worse. On examining the husband I found the horizontal inguinal glands were much enlarged on either side, and were also painful and tender. On drawing back the prepuce I saw five typical vaccination marks about a week old on the glans penis. The vesicles contained a very small quantity of lymph. There was no urethral discharge. His wife had two vaccination marks one just inside the labia and the other at the margin of the orifice of the urethra, the latter accounting for the pain on micturition. They seemed to be about the same age as those on the glans penis of the husband. There had been no sexual intercourse since the 14th. On the 22d the conditions were more aggravated in both cases. In the husband's case there was some swelling of the penis, and by the 23d that had become so great that the prepuce could not be retracted, and there was some discharge coming from the glans but none from the urethra. On the 27th the glands in both were nearly their normal size and all the local conditions in both husband and wife were not so great, although the wife had still some pain on micturition and a slight discharge from the vagina. On the 29th the husband returned to his work and his wife was able to resume her house duties without any discomfort. The mode of onset and the subsequent history with their complete recovery in so short a time leave no doubt as to the true nature of the case.—*London Lancet*, January 1.

Treatment of Chlorosis.—Dr. Latham of London writes to the *Practitioner*, October, an interesting contribution regarding the treatment of anemia and chlorosis. He has found the following treatment serviceable in many cases of chronic chlorosis:

Tinct. ferri perchlor	m. x–xx.
Sp. ætheris sulph	m. x–xv.
Tinct. nucis vom	m. x.
Tinct. quassiæ	m. xxx–xl.
Aq. ad	℥iss.

To be taken twice a day, an hour before luncheon and dinner.

It has been said that when iron is tolerated in chlorosis, the remedy "is only effectual when given in large doses"—in such doses as will render the alkaline sulphids formed in the intestine inert. I dissent altogether from this plan of treatment. Large doses not infrequently set up considerable intestinal irritation, a febrile condition, palpitation or headache. "Every physician is acquainted with the symptoms which arise when young girls have taken large doses of iron for some time. Irritation of the abdominal organs, which evidently begins in the intestine, is set up, and may extend to the peritoneum and be accompanied with the usual symptoms, pain, discomfort, a tendency to vomit, diarrhea or constipation and general exhaustion; the last, however, not being apparently dependent upon the condition of the abdominal organs. These symptoms may persist for some days even when the iron is immediately discontinued, and may then gradually subside."

It is well then not to exceed moderate doses of iron; but, if necessary, we should endeavor to limit the formation of the alkaline sulphids in the intestine by other means. One of the most effective ways of doing so is to ensure a daily, satisfactory and natural action of the bowels. Constipated bowels may, as Sir Andrew Clark pointed out, lead to the absorption into the circulation of toxins, which then have a destructive action upon the red corpuscles.

An Irish Surgeon's Adventures in Turkey.—Surgeon Charles S. Ryan, formerly with the Turkish army in the warfare of ten years ago, has written a charming narrative of his experiences in the Orient. The *Lancet* dubs the book by the title "Phil Fogarty II." for the adventures which the author relates are even superior to the experiences of the Thackeray-Lever hero. Dr. Ryan is an Australian Irishman, and evidently possesses qualities eminently suitable for an army surgeon; indomitable pluck, cheerfulness under the most depressing conditions and, above all, the quality of sympathy. Dr. Ryan finished his medical education at Edinburgh University and was enjoying a holiday when he saw an advertisement from the Turkish Government inviting applications to serve as an army surgeon. He at once applied and was accepted, and the first post to which he was appointed was the camp outside Widdin. Of his work here he gives the following picture: "Half a mile from the camp was a large marsh or swamp, where great white arum lilies grew, with jonquils, narcissus, and the different kinds of iris in magnificent profusion, as well as millions of the tiny white snowflakes. I had a trench dug outside my tent, and once a week our two servants . . . brought back barrowfuls of flowers, which I planted in the trench. Here, too, the orderlies made us a great seat of turf and every morning from six o'clock till half past nine, I sat there among the flowers to receive my patients, who used to come up from the various battalions to have their ailments treated. As I sat on my throne of turf I had a sack full of Epsom salts beside me, together with a bucket of water and a pannikin, so that when the patient had swallowed a handful of salts I presented him with a pannikin of water and washed the nauseous mouthful down." Dr. Ryan was soon, however, to see very different work. His account of the siege of Plevna and the appalling state into which the hospital got toward the end of that magnificently borne time of trial reads like a chapter from the "Inferno." We must not quote any more, but will only say that after getting out of Plevna, Dr. Ryan volunteered for service with the Stafford House ambulance for service in Erzeroum. Here things were, if possible, worse than in Plevna. Typhus fever, cold and starvation added to the misery of wounds made up a terrible tale. We can sympathize with Dr. Ryan's trials on his journey from Erzeroum to Trebizond, and from a personal experience of the country we know what he must have undergone. Every one should read this book; it is a plain unvarnished tale of what goes on in war, and takes us back to the simplicity of MM. Erckmann-Chatrian, whose war stories are, we think, superior to those of Zola, except perhaps his "Attaque du Moulin." The style is easy and eminently readable.

Some Animal Substances used as Remedial Agents a Century or More Ago.—*Human skull* (cranium hominis). The powder, in doses of one dram, used in epilepsy; those a long time buried said to have been preferred, and some even limited the remedial action to the os triquetrum (bone of the carpus, situated between the os lunare and os orbiculare).

Paring of the nails (rasura unguis). A common emetic.

Mummy (mumia). Either that brought from Egypt, or prepared by dipping muscular flesh in spirit of wine and hanging it up in a brisk draft of air, or smoking it like ham. Used in bruises, epilepsy, asthma, phthisis, in powder ½ to 1 dram. Classified by one writer (1753) as a vulnerary.

Puppies (catelli). Live puppies, split in half and applied while warm; employed as poultices "to draw venom" from sores or boils. The puppies were sometimes boiled first in oil to make the poultice "mucilaginous."

Wolf's liver (hepar lupi). Used dried in diseases of the liver.

Fox lungs (pulmones vulpis). Used when dried and powdered in a pectoral linctus. This remedy was a great favorite among the common people. One writer says that the lungs of a fox must be a specific for asthma because "that animal is remarkable for its strong powers of respiration."

Huckle bone of the hare (astragalus leporis, talus leporinus). Diuretic powder.

Hare's fur (pili leporis). Styptic.

Musk (moschus). Antispasmodic and diaphoretic. The author of the New Dispensatory (1753) quaintly remarks that in his day "it has been for some time out of use, even as a perfume, on a supposition of its occasioning vapors, etc., in weak females and persons of sedentary habits."

Elk's hoof (ungula alcis). Anti-epileptic, either worn externally, so as to touch the skin, or taken in powder in doses of one dram. Said to "smell very sweet, by which it may be distinguished from a buffalo's hoof, which is sometimes sold for it."

Bone of a Stag's heart (os e corde cervi). Cardiac, esteemed to remove barrenness and prevent abortion. Dose, in powder, one dram.

Hartshorn shavings (rasura cornus cervi). The horns of the buck or fallow deer. To quote the New Dispensatory (1753), "Many extraordinary virtues have been attributed to these horns, and to all the parts of the animal in general; but experience gives no countenence to them; nor do they seem to have any other foundation than the great timidity of the hart, the annual removal of his horns, and an opinion of an extraordinary longevity; from these circumstances it was inferred that all parts of him must be proper for intimidating the enraged archeus, renewing health and strength, and prolonging life."

Boar's tooth (dens apri). Used as hartshorn shavings, but of greater value.

Rhinoceros horn (cornu rhinocerotis). Alexiterial, in powder; dose one dram.

Unicorn's horn (cornu unicornus). Resists the operation of poisons.

Inward skin of the fowl's gizzard (pelliculæ stomachi gallinæ interiores). "To strengthen the stomach."

Egg shell (caro testudinis). "Highly nutritive, analeptic and antiscorbutic." (Gray.)

Skinks (scinci). Dried, salted and powdered skins were considered alexipharmic, aphrodisiac and diuretic. Were also used in the preparation of the "mithridate."

Scaly lizard (lacerta agilis). Was sometimes used instead of skinks.

Vipers (viperæ). Both live and dried; were official in the Edinburgh Pharmacopeia and considered "alexiterial, sudorific, depurative and very nutritive." An old work on materia medica discusses the subject in part as follows: "The viper or adder is one of the viviparous reptiles, without feet, about an inch in thickness, and twenty or thirty in length. The poison of this serpent is confined to its mouth, at the basis of the phangs, or long teeth which it wounds with, is lodged a little bag containing the poisonous liquid, a very minute portion of which, mixed immediately with the blood, proves fatal; our viper catchers are said to prevent the mischiefs otherwise following from the bites by rubbing olive oil warm on the part. The flesh of the viper is perfectly innocent and strongly recommended as a medicine of extraordinary service in scrophulous, leprous and other obstinate chronical disorders; its virtues, however, in these cases are probably too much exaggerated. The viper is undoubtedly an high nutritious food, and hence, in some kinds of weaknesses and emaciated habits is not undeservedly looked upon as a good restorative. To answer any valuable purposes, fresh, vigorous vipers (not such as have been long kept alive after they are caught) should be liberally used as food; the wines and tinctures of them can scarce be supposed to receive any considerable virtue from the animal(?); the dry flesh brought from abroad is entirely insignificant."

Toad (bufo). The toad "dryed by a gentle heat and pulverized" was greatly esteemed as a diuretic and antihydropic. Dose in powder, to one dram. Applied externally to the abdomen to restrain "haemorrhagies." "Bufo Præparatus" or "prepared toad," was officially manufactured by the old Edinburgh Pharmacopeia as follows: "Put live toads into an earthern pot and dry them in an oven moderately heated till they become pulverable."

Prepared goat's blood (sanguis hirci præparatus, Edinburgh Pharmacopeia). "About the beginning of summer, take blood from any convenient artery of a middle-aged goat and expose it in a clear vessel to the sun, or a moderately heated oven, till sufficiently dried." Paris, the author of "Pharmacologia," and professor of materia medica in the Royal College of Physicians, London (1819-21), quoting from Browne's "Vulgar Errors," states that in many of the ancient works on physic, the blood of the goat was extolled for its efficacy in dissolving stones, and from this supposed lithotriptic virtue, it forms the principal ingredient of the "Powder of Nicolaus" and of the "Electuary of the Queen of Colein." The expression which gave origin to this belief was evidently allegorical, signifying that the blood of the goat, by which our Savior was typified, was capable of softening the stony hearts of his enemies, or according to others, that by his influence the stony rocks and veil of the temple were shattered.

Frog's spawn (sperniola, ranarum sperma). "Celebrated as an excellent cooler for external purposes"; also used as an ingredient of a distilled "simple water."

Salamander (salamandra). Prepared by infusion in oil. Used by internal administration as a diaphoretic; externally, useful in rheumatism.

Bone of the perch's head (os e capite perciæ). Absorbent, lithotriptic; externally in tooth powders and to dry ulcers.

Pike's jaw bone (mandibula lucii). In powder, useful in leucorrhea and to facilitate labor; dose 1 to 2 drams.

Liver of eels (hepar anguillæ). Used dried and powdered, to facilitate labor; dose 1 to 2 scruples.

Hog lice, wood lice (millipedes, etc.). Alive, No. 12 (Gray) or dried and powdered, in dose of one to three scruples; used as a diuretic, "aperitive," and in the treatment of jaundice. Millipedes were official in the early editions of both the London and Edinburgh Pharmacopeias.

The insect kingdom was also called upon to furnish scorpions, beetles, bedbugs, ants, bees and a number of other substances, like cantharides, cochineal, etc., used more or less at the present time.—*Pharmaceutical Era*, January 6.

PRACTICAL NOTES.

Negative Antibacterial Effect of Tannin.—Sabrazés states that tannin has no antibacterial effect. On the contrary, it rather seems to favor the development of Koch's bacillus *in vitro* and in the guinea pig.—*C. R. Soc. de Biol.*, 1897, No. 40.

Lymph Glands in Carcinoma.—The importance of exterminating the lymph glands even down to the base of the broad ligament, in carcinoma of the uterus, as in carcinoma of the mamma, was emphasized at the Moscow Congress, and for this reason the abdominal route recommended.

Absorption of Antitoxin in the Alimentary Canal.—Escherich has established the fact that diphtheria antitoxin is readily absorbed by infants if administered per os or per rectum, but that it is not absorbed by older children or by adults when administered in this way.

Chlorid of Zinc in Gynecology.—For cauterizing the uterus after curettement, or in case of erosions, Schlapobersky has found a 20 per cent. solution of zinc chlorid extremely effective and satisfactory in every respect. *St. Petersburg Med. Woch.* December 25.

Powders for Migraine.—Antipyrin and potassium bromid, aa. 50 centigrams; cocain hydrochlorate, 1 centigram; caffein, 2 centigrams; pulv. paullinia sorbilis, 30 centigrams. For one powder. Make six. Take one at the first indication of migraine.—A. Robin in *Semaine Méd.*, January 19.

Xerophthalmia.—E. Neznamov cures xerophthalmia by bathing the conjunctiva with a salt solution to which a little sodium bicarbonate has been added; then swabs lightly with sulphuric ether on a cotton tampon. The lachrymal secretion is also stimulated by an occasional whiff of some ammoniac liquid during the day.—*Semaine Méd.*, December 29.

Bronchial Asthma.—The injection of a Pravaz syringe of the following fluids will sometimes arrest an attack of asthma; occasionally two or three injections are required: Morphin sulphate 75 milligrams; strychnin sulphate, 1 centigram; hyoscin hydrobromate, 3 milligrams; aq. dest. 10 grams. For hypodermic injections.—S. Solis-Cohen, *Semaine Méd.*, December 29.

Anesthesia of the Urethra by Rectal Injections.—Morphin hydrochlorate, 15 centigrams; atropin sulphate, 5 milligrams; aq. dest. 50 grams. For external use. Two to four grams of this solution injected into the rectum will completely abolish sensibility in the posterior urethra.—M. Scharf, *Progrès Méd.*, December 25.

The Value of Filmogen is cordially endorsed by Unna in the *Monatsheft. f. prakt. Dermatologie*, Vol. xxv, No. 4. It is an insoluble varnish superior to collodion, etc., for several reasons, taking up medicaments readily and adhering to moist surfaces. Unna has obtained remarkably favorable results in infantile intertriginous eczema, with 5 per cent. ichthyol in filmogen (*vide* JOURNAL, Vol. xxvii, No. 24). It is readily removed with alcohol or ether.

Treatment of Orchitis.—Du Castel disapproves of keeping patients with orchitis in bed, and has been very successful with a compressing cotton-lined suspensory, allowing the patient to pursue his usual occupations, after the pain has been relieved by painting the effected part with methyl or ethyl chlorid, which produces refrigeration similarly to ice, recommended for the purpose by Diday. He has cured in this way cases complicated with severe vaginalitis, and in chronic cases rebellious to all treatment finds this method as satisfactory as any.—*Semaine Méd.*, January 19.

Aluminium Acetate in Uterine Hemorrhages.—The hemostatic, antiseptic and astringent properties of this substance render it an effective means of arresting hemorrhage from the uterus, post partum or otherwise. Kalenscher makes the injection through a rubber tube attached to the end of a syringe holding 20 to 30 c.c. of a 3 per cent. solution, introducing it into the uterus. The astringent power is such that the vagina contracts until it is difficult to insert the finger. Three to five injections are usually required.—*Semaine Méd.*, January 19.

Alcohol as a Disinfectant.—Recent researches seem to show that absolute alcohol is devoid of all disinfectant properties, whereas proof spirit (50 per cent.) gives more tangible results in this direction than either stronger or weaker solutions. Antiseptic substances which, in aqueous solution, are more or less active germicides, entirely lose this property when dissolved in strong alcohol, but, on the other hand, corrosive sublimate, carbolic acid, lysol, and thymol, dissolved in a 50 per cent. solution of alcohol, disinfect better than aqueous solutions of the same strength.—*Med. Press and Circular*, January 26.

Organ Therapeutics in Infantile Nephritis.—Concetti announces extremely favorable results from the administration of renadene (an article manufactured from the kidneys of young pigs, mixed with sugar of milk) to six children under 5 years of age. Three were cases of acute primary nephritis, the others were chronic cases consecutive to scarlet fever or whooping cough. As much as four grams a day were given and it was always well tolerated. The improvement in the general condition was "rapid and conspicuous," and all the local symptoms progressively disappeared. The acute cases were attenuated and promptly recovered. The usual hygienic measures were applied at the same time.—*Gaz. d. Osp. e d. Clin.* December 26.

Iodoformed Salol in Tuberculosis of the Bones.—P. Reynier confirms his former announcement in regard to the benefit derived from salol heated to 48 degrees C. with iodoform (at which point it melts, crystallizing into a solid mass as it cools), injected into tuberculous lesions of the bones, the soft parts over it sewed up at once, without drainage. In one of the six cases he reports, the patient's leg was amputated one year after on account of the spread of the disease. The injected spot was found entirely healed, the salol forming a solid adherent block, hard to be detached. The Soc. de Chir. does not endorse the method, observing that it promises no better than Reclus' iodoform salve, which did not survive, and the *Cbl. f. Chir.* agrees with this opinion (November 13).

Bromid of Ethyl in Hysteric Aphonia.—Arslan reports five cases of hysteric aphonia in women treated with success by bromid of ethyl. The patients were rapidly anesthetized with full doses (10 g.) of the drug and as soon as they were partly insensible, it was suggested that they shout loudly their name, count numbers, etc. The results obtained by the method were satisfactory. In four of the cases there was evidence of disease in the nasopharynx. In three cases influenza was an exciting factor.—*Gazetta degli Ospitali.*

Improved Local Anesthesia.—Operations on fingers and toes, ingrowing nails, panaritium, etc., are the most difficult to anesthetize with the Schleich method, and yet they are the most frequent in general practice. Oberst's method is simple and effective for these cases. The finger or toe is first raised to expel the blood, and the central end, as close to the field of operation as possible, is wound once or twice with an elastic cord, the ends not tied but held with a clamp. Cocain is then injected in the four sides of the finger, directed toward the tip, just below the ligature. The anesthesia is complete in three to ten minutes, tested with a prick, and lasts as long as the circulation in the part is arrested. This method has been followed at Breslau in 124 cases of the kind with such satisfactory results that Honigmann recommends it warmly in the *Cbl. f. Chir.*, December 25.

Treatment of Hemiplegia with a combination of passive gymnastic, baths and go-cart. Huchzermeyer of Oeynhausen advises commencing the treatment promptly, not waiting for complications to develop. He applies it to hemiplegia without regard to the etiology. Commencing with passive exercises of the affected and also of the sound members, half an hour twice a day, stretching, twisting, turning, etc., until every muscle has had its due share of gentle exercise. He considers electricity and massage superfluous in many cases and injurious in others, but supervises the diet and gives four or five salt baths a week at 26 to 27 degrees R., which he considers a most important factor in the treatment. The patient often feels his first spontaneous movement as his members are buoyed up in the dense salt water. The same effect on a larger scale is obtained by a large go-cart, such as is used to teach children to walk, which holds the body in an upright position and allows the patient to swing his legs with the slightest effort of the muscles. The patient recovers under this treatment with remarkable rapidity and completeness.—*Deutsche Med. Woch.*, January 6.

Traction of the Tongue in Apparent Drowning.—A report was recently published in *La Tribune Médicale*, which appears to illustrate the value of traction of the tongue in the restoration of the apparently drowned. A boy fell into one of the docks at Havre, and was not recovered till he had been immersed fully five minutes. He was quite unconscious when brought to land, but a custom-house officer at once proceeded to perform artificial respiration by Laborde's method (rhythmic traction on the tongue), while other attendants rubbed him vigorously and blew air into his mouth. In half an hour signs of life reappeared in the form of respiration and a few moans. He was quite two hours longer before completely recovered. Our contemporary considers that the fortunate result was mainly due to the tractions on the tongue, and with Dr. Gilchrist of Nice, who has called our attention to the report, suggests that it should be made widely known through the lay press that traction on the tongue repeated regularly fifteen times a minute, is a highly efficacious treatment in many cases of apparent death from asphyxia—*Brit. Med. Jour.*, January 29.

NEW INSTRUMENTS.

AN ELECTRIC STERILIZER FOR INSTRUMENTS IN EAR, NOSE AND THROAT PRACTICE.

Read by title at the Tri-State Medical Society, Louisville. October, 1897.

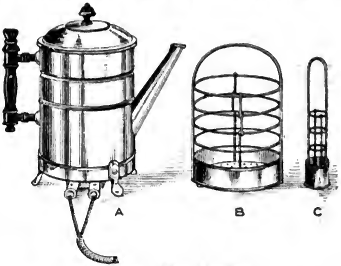
BY W. SCHEPPEGRELL, A.M., M.D.
NEW ORLEANS, LA.

The necessity of sterilizing all instruments for surgical operations has been so thoroughly instilled into the minds of medical men that we rarely find a surgeon who does not give careful attention to these details. Many forms of sterilizers have been suggested for preparing instruments for surgical operations, and the majority are of more or less practical value. A subject, however, to which the same amount of attention has not been given, is the preparation of instruments in ordinary use in office practice. It otolaryngology this refers especially to nasal and oral speculums, tongue depressors, applicators, etc. Each of these may be the means of carrying infection, unless the same attention is given as in the preparation of instruments for surgical operations.

A probable reason why more consideration has not been given this subject is the difficulty of arranging a suitable apparatus in a private office without the disagreeable effects of the heat and odor arising from the sterilizing process. Alcohol and gas lamps each have an objection in this connection. For the purpose of facilitating this matter I have recently devised an electric apparatus, which may be used not only for preparing instruments for operations, but more especially for sterilizing those in ordinary use. As this method obviates the odor from the products of combustion from oil, gas and alcohol lamps, and the inconvenience of using these where there is a current of air, it has displaced all others in my office.

A vessel of two quarts capacity is used, the heat being obtained from fine German silver wire at the bottom of the vessel, as in electro-culinary utensils. In this way boiling water may be obtained in a few minutes.

In this vessel (A), when used for sterilizing, a wire cage (B) containing the instruments is lowered into the vessel and left sufficiently long to become thoroughly sterilized. A smaller cage (C) is made for applicators. All metallic instruments used in the office may be prepared in this manner and may be made thoroughly aseptic.



Scheppegrell's Electric Sterilizer.

In regard to the economy of this method, it has been shown by James S. Stevens and Burton S. Lanphear (*American Electrician*, September, 1897), that if electric energy can be furnished for fifteen cents per kilo watt-hour, which is believed to be slightly in advance of the average rate, the use of the electric heater is about 30 per cent. cheaper than the commercial (95 per cent.) alcohol for the kind of work for which these heaters are designed.

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SATURDAY, FEBRUARY 26, 1898.

THE ANNUAL MEETING OF THE TRUSTEES.

The Trustees met in annual session, according to the regulations, February 15. All the members were present and the usual routine matters disposed of.

The affairs of the Journal have been very prosperous this year as compared with former years. The circulation has greatly increased, and the finances of the Association have never been in better condition.

The Board adjourned to meet in Denver on Monday, the day before the meeting of the Association. The formal announcement of the special train will not be made until the question of rates by the railroads shall have been definitely settled.

Among other items of general interest to the Association may be mentioned that the Trustees authorized the engaging of a special Journal Train from Chicago to Denver. A committee was appointed to have charge of the same, consisting of the Editor of the Journal and Dr. Truman W. Miller, with such assistants as they might select from the members of the Association. It was decided that some features of former trains, which have been considered objectionable by many, will be eliminated.

DECREASE OF DEATH FROM CONSUMPTION.

A recent issue of the Journal (Feb. 5, 1898) contained thirty-five pages of matter on the subject of pulmonary phthisis, contributed by nine different writers, scattered from the Atlantic to the Pacific coasts, and during the past decade an enormous amount of more or less valuable similar literary effort has been devoted to the "great white plague." Since the publication of this last batch of papers the Journal has undertaken to ascertain the effect of this agitation during the last ten years, and the results of the inquiry are decidedly reassuring, at least as to the disease in urban populations.

Roughly stated, twenty principal cities, having an aggregate population of about seven and a half millions (7,478,506), in 1888, had nearly twenty-five thousand deaths (24,708) from consumption in that year; in 1897 the same group of cities, with an aggregate population of nearly ten millions (9,971,341), had a little more than twenty thousand deaths (20,161) from this cause. In exact percentages and per milles the following are the figures: Death rate per 10,000 of population from consumption in twenty cities, in 1888, was 33.03; in 1897 it was 20.21; decrease in death rate 38.8 per cent. Actual decrease in number of deaths, 4547. Actual increase in population, 2,492,835; per cent. of increase in population during the decade, 33.33.

In four of the reporting cities, namely, Minneapolis, St. Paul, Denver and Omaha, there is an actual and relative increase—due, as to the first three, to the increasing number of imported cases, concerning which Health Commissioner Munn of Denver estimates that 85 per cent. of all consumptive patients in that city are exotic. Among the remaining sixteen cities the most notable reductions are Buffalo, 46 per cent. decrease; Cincinnati, 44 per cent. decrease; Philadelphia, 43 per cent. decrease; New York, 30 per cent. decrease; Brooklyn, 28 per cent. decrease; and Chicago, 24 per cent. decrease.

Of those who assign causes for this decrease, Dr. Benjamin Lee, health officer of Philadelphia, gives the following: "First, improved pavements; secondly, improved drainage; thirdly, generally improved sanitary condition of small streets and alleys; fourthly, the diffusion of information by the Pennsylvania Society for the Prevention of Tuberculosis; fifthly, notification by physicians and disinfection of premises, both prescribed by the City Board of Health."

New York tersely ascribes the result to "clean streets, cattle inspection and treatment of tuberculosis as infectious." Dr. S. H. Durgin of Boston, to "better care from increased knowledge, better isolation, clothing and shelter, greater cleanliness of person and environment." Dr. Max C. Starkloff of St. Louis to "education of the public to appreciate its contagiousness, observance of health department notices against expectoration in public places, and fumigation of premises where death has occurred." Dr. J. M. Withrow of Cincinnati says: "The decrease is largely due to isolation of consumption patients in hospitals and the practice of sending all city hospital consumptives to a special isolation hospital in the country." And Dr. W. C. Woodward of Washington, D. C., thinks it is due to "improved modes of living."

To all of which, and much more of the same sort, the JOURNAL begs leave to add a factor entirely and somewhat naturally overlooked by the health authorities, to wit, the earlier recognition of the disease and its improved and more successful treatment by the medical profession. This factor will undoubtedly account for a large share of the apparent reduction shown in the foregoing figures—a reduction which, it is to be borne in mind, is "apparent" to the extent that they deal only with urban populations and take no note of the increasing numbers of consumptives who are sent away and die in sanatoria, health resorts and elsewhere.

THE "MICROBES" OF RHEUMATISM.

The popular or prevalent theory of the nature of acute articular rheumatism may be assumed to be, at the present time, that of its bacterial or infectious origin. The exact microbe which causes it has been so far unknown, and there may yet be in the minds of some a reservation of doubt as to the above stated pathology. The fact that acute rheumatism is not unknown or infrequent in the polar regions, where **NANSEN** is said to have suffered from it, may not be much of an argument against this origin of the disease, but it suggests at least a relationship to other diseases that are prevalent in Arctic climates and that are more generally attributed to irregular or morbid metabolism in the system than to living germs from without. The various bacteria, that have been credited or suggested as producing this disorder, by **LUCATELLO**, **SAHLI**, **LEYDEN** and others, have not been generally accepted as having such function by those best qualified to judge, and it has commonly been relegated to the large class of presumably or more or less certainly infectious diseases of which we are yet ignorant of the inciting germ.

The most recent researches in this special direction are possibly a little more suggestive and promising than any that have preceded them. In the November issue of the *Annales de l'Institut Pasteur*, M. **ACHALME** publishes an account of an organism that he has found most abundantly in the autopsies of two fatal cases, but also in the blood of living subjects of rheumatism and which from its behavior in control experiments and cultures appears to be possibly connected directly with the disease. It was a thick rodlike bacillus, not dissimilar to that of anthrax, exclusively anaerobic, requiring for its culture a very complete vacuum, staining readily by anilin and by the **WEIGERT** and **GRAM** methods. Its cultures give rise to lactic acid and an odorous mixture of acetic, butyric and propionic acids; its development was arrested by very small amounts, less than those required for other organisms, of sodium salicylate.

When inoculated into guinea pigs it caused the characteristic symptoms, infiltrations, pleural effusions, etc., of rheumatism, the animals succumbing in twenty-four to thirty-six hours. In rabbits endopericarditis and pleurisy closely resembling those in the human subject followed the injection of serum from inoculated guinea pigs. The bacillus readily associated itself with other microbes, especially streptococci, and seemed to favor their penetration into the organism.

The discovery of **ACHALME** is to a certain extent corroborated by two later investigators, M. **TREBOULET** and **COYON**, who reported their results to the Société Médicale des Hôpitaux, Paris, on December 24. They made a special search for **ACHALME**'s bacillus in a number of cases of rheumatism, and in every patient examined they found a special form of diplococcus, oblong, always in pairs, about two microns in diameter, to a certain extent anaerobic, and not decolorized by **GRAM**'s method. In two very severe cases of rheumatism, however, they found **ACHALME**'s bacillus, and also in certain autopsies, associated with their own diplococcus. According to their observation the bacillus appears to be only associated with the severer forms of rheumatism, while they suggest that their own discovery, the diplococcus, may be the common microbe of the disease.

Whatever may be the estimate of the importance or value of these researches, they are in the right direction, and should lead to still further studies upon this subject. There are relations between acute and chronic rheumatism also that require elucidation, in fact the whole subject is a broad enough one to engage attention for some time to come; there is not much danger of the immediate exhaustion of the field for research in this special direction. There are other bacilli that produce lactic acid and that succumb to the salicylates than that described by the French author, but his discovery has enough special characteristics to suggest a possible connection between it and the severer manifestations of acute rheumatism. The diplococcus found by the other observers may or may not be found later to be directly connected with the lighter phases of the infection; it certainly deserves a further study as to its reactions and development. The lead thus opened will undoubtedly be followed up and it is to be hoped will before long give us some more definite knowledge than we now possess of the real nature of the rheumatic poison.

THE FREE MEDICAL AND SURGICAL TREATMENT OF THE WELL-TO-DO IN MICHIGAN UNIVERSITY.

Since their establishment the Clinic and University Hospital at Ann Arbor have, as a rule, treated all who applied. Occasionally a particular professor would object to treating a notoriously rich person, but no rule has been adopted. Moved, doubtless by the protests of the profession and their own sense of equity, the medical faculty requested the Board of Regents at a late meeting to exclude all well-to-do people seeking admission to the University Hospital. The board has the matter under consideration. It is reported in the public press that the majority are opposed to such exclusion of the rich. They hold that the hospital is for teaching students of the medical department, and that a millionaire makes just as good a subject for teaching as a pauper; that he pays taxes to the support of the hospital, and so has a right to the free services of the University Hospital staff.

This view of their duties is quite at variance with that held by the people who elected the regents. The latter expect the regents to conduct the University Hospital and Clinic in such a manner as to teach the medical students practical medicine and surgery, without disturbing the interests of any class of citizens, and without promoting discord between classes, or antagonism to the university based upon unjust discrimination.

First it is creditably stated that the University Hospital would be full from the ranks of the poor, if only the rich were excluded. Hence there is no need to admit the rich for the purpose of augmenting the size of the clinic. It is also creditably stated that the character of cases presented by the well-to-do, differs in no essential respect from those of the poor; all are of the chronic order admitting of transportation over long distances, as cases of cataract, chronic surgical injuries or diseases. Hence on the ground of quality of cases there is no reason for the admission of the rich to the Hospital for the benefit of the students.

But the regents were chosen to conduct the Hospital for the benefit of all the people of the State, so that it is pertinent to inquire respecting this benefit. An illustration or two may aid us to understand the effect of free treatment of the rich at the University Hospital. A friend of the writer living in western Michigan told him that for years the only way he could keep any case of cataract, or other operative case on the eye, was to figure out the railway fare to and from Ann Arbor and the cost of two weeks board at three dollars per week, and offer to do the operation for the resultant sum. Before he adopted this rule all well-to-do people went to the University Hospital. The fact of the free treatment of the rich at the University Hospital, was the club used by the rich to compel his working at utterly inadequate prices. Even those who had no idea of going to Ann Arbor used this club of the Free University Hospital to compel him to meet the competition of that institution, to support which he was taxed. He observed that these same people developed the habit of beating others on all possible occasions, apparently because they had beat the State out of services for which they were able to pay. He also said that there was much grumbling on the part of persons of moderate means, because their rich neighbors got for nothing services for which they paid—grumbling directed against the University.

Another practitioner in a different portion of the State would not adopt this plan; as a consequence nearly all well-to-do operative cases left him and were treated at the Free University Hospital. What work this man did, he insisted on being paid for in a reasonable manner; the result to his practice was evident. The cases that were able to pay largest fees went to Ann Arbor and were treated for nothing.

These two practitioners are types of all who treat chronic medical or surgical cases, and they illustrate the effects of the Free Hospital service at the University. The rich have been encouraged to try and get something for nothing, thus engendering a spirit hostile to the best citizenship. The poor have been crowded from the place and service intended for them, and so wronged. While persons of moderate means who regularly pay their medical advisers, are dissatisfied with being also forced to pay taxes in support of a hospital, physicians and nurses, for the free treatment of their rich neighbors. It is obvious that the Free University Hospital undermines the financial support of the medical profession both directly and indirectly; directly, in that their own rich patients are lured away by the cheapness of the Hospital; indirectly, in that many well-to-do people by the threat of going to the Free Hospital, compel services at rates far lower than rates for such services in regions distant from the influence of the University Hospital. It is thus evident that the value of the University Hospital would in no respect be impaired by restricting admission to those unable to pay for medical services. The quantity of patients would be as large as it could accommodate, and the quality all that can be secured in a small town. Therefore the interests of the Hospital would be advanced by restricting admission to the poor.

It is farther evident that the interests of rich, poor and those in moderate circumstances unite with those of physicians in demanding that the University Hospital be closed to those able to pay for medical services.

It is hoped that the Board of Regents will regard their obligations to the Hospital, to the University, to all citizens of the State and heed the request of the Medical Faculty.

THE APOTHECARY.

Our editorial on the "Passing of the Apothecary" seems to have provoked considerable discussion, some in concurrence and some adverse, and we have been "roasted" with great unction in some pharmacy journals. It was not intended to belittle the profession of pharmacy but merely to show the trend of the times. One of our correspondents (in January 15 issue), in trying to show that we are mistaken, confirms much that we said but blames it all on the physician. "We are compelled to load down our shelves with a dozen makes of pills, etc., merely to please the physician." And he concludes by saying that "the lot of the pharmacist is not a happy one" because the physician allies himself with the manufacturing chemist to enrich him and help himself.

This is the very point. Why does the physician ally himself with the manufacturing chemist? Why do men standing at the topmost rung of the profession agree to become consulting therapeutists for commercial concerns? Why do chemists of international ability become the attachés of these establishments? Is it commercialism that is at the bottom; is it according to an industrial evolutionary law? We did not answer these queries, we simply mentioned the fact as it exists. And while there are many able, intelligent and exceptionally well educated men in the profession of pharmacy, some better educated than many physicians, we still maintain that, in certain cities at least, there are numerous drug stores conducted by individuals who have studied a few months or more and passed a haphazard examination, and who conduct a variety store rather than an apothecary shop, who are merely agents for the wholesale houses. We know at least a half dozen stores in one large city, run by the wives of young men who themselves one year before were workmen in some other trade. While there are probably more college trained men in the profession of pharmacy today than ever, yet we affirm that today it is possible as it never was before, for a person to dispense medicine in a large city who does not know how to make a tincture, a pill, a suppository or any of the ordinary preparations called for. That these things are done for him, and apparently satisfactorily, by large concerns whose tendency is to grow larger and to embrace more and more the work of the individual pharmacist. It is true that the department stores do handle toilet articles, etc., and even patent medicines and quinin pills, but glance into the windows of the metropolitan fashionable drug shop and see what importance is given to bric-a-brac, to the *bar*, to soaps and perfumes and candies! We regret the departure of him of "the mortar and pestle," and if it be true, as our correspondent says, "that better days are in store for him," we congratulate him. We feel, however, that this thing is not of the physician's doing, though he is drawn into the struggle, but that it is the result of a chain of circumstances peculiar to the time, against which neither the pharmacist nor the physician can battle successfully.

THE DISPENSARY WAR.

In nearly all of the large cities the evils of free dispensaries are recognized, and the great question is to know what to do, how to abandon them and how to end their pauperizing influences. In the city of New York two parties are gathered in battle array. One would like to restrict the present free practice in dispensaries and stop the organization of new ones; the other would enlarge the scope of this work, and permit new places to give free treatment. The college teachers and post-graduate schools are very active to keep up the dispensaries, and the general practitioner realizes their danger to himself and the community. The issue is to be settled by a bill prohibiting dispensaries except under certain general restrictions, now pending at Albany. At this distance it is difficult to understand how any defenders of the present dispensary system can make a reasonable plea for their continuance on their existing basis. The profession have fallen into a low commercial level of giving gratuitous services, at all times and places, and have lowered themselves and the recipients of their charities. No other profession has pursued such foolish ways of work for the community, and as a result there is suffering. The blatant quack comes into a community and is paid for his pretentions. The poor always have money to reward him, but the well trained physicians must give their knowledge and skill for charity. The war should be to revolutionize these senseless delusions and not to perpetuate what is so clearly a wrong. We all unite in calling for a higher grade of medical preparation, and why should there not be an equal union of sentiment in raising the work of the profession to at least a common sense basis of reciprocation and dignified recognition of the value of such services. It is to be hoped that the good sense of the metropolitan physicians will prevail over the narrow policy of continuing an abuse fatal to all that is just and equitable.

CORRESPONDENCE.

Dr. McLean's "Personal Observations in Pulmonary Phthisis."

DENVER, COLO., Feb. 12, 1898.

To the Editor:—I have just finished reading this excellent paper in the February 5 issue of the JOURNAL and I feel like congratulating the author on writing the best article that has appeared for some time on the *prevention* and treatment of consumption. It is *prevention* more than *cure*, because once the conditions of imperfect aeration of the lung apices and the peripheral or terminal laxity of pulmonary blood vessels exist, which constitute the *gist* of this unanswerable argument, and the preventive warfare of the individual must be constant thereafter in order that health may be maintained. We seem (only *seem* in any case) to neglect these preventive means in treating and writing of the serious and advanced lesions which predominate in the class of tubercular cases which come under observation in this sanitorium State. It gives me pleasure to endorse these measures which are preventive. They are applicable alike everywhere, but especially in low damp climates where the dangers are greatest. Prevention antedates and then goes along with treatment, of which it is the major part any way. This idea seems to emphasize the importance of Dr. McLean's earliest "diagnostic symptom," or the "gravitation cough," as he calls it. His idea is unique and its explanation plausible with regard to the early hacking cough or clearing of the throat on retiring at night. It may be the first sign-board on the road to phthisis and therefore a good warning for the rest of us to review our own experience in recognition of it. To take an N. B. of so early a symptom is to be forewarned of the trouble to come. It beats the bacillus of tubercle as to time, for all that we now know, and fixes it as an after episode of an already established condition.

The treatment indicated is in confirmation of all we have been preaching for these past twenty-five years in favor of exercise and high altitude climate. Especially is it gratifying to me to see such a confirmation of the need and such a proof of the utility of the "In- and Exhaler," advanced by one who had probably never seen this little pocket device (descriptions of which will be sent to any one applying to the Denver Surgical Instrument Co.). I infer this unfamiliarity with the In- and Exhaler because in the claim advanced for "mechanical expansion" of the lung periphery and bronchi, as a possible substitute for living "at an altitude that gives immunity against phthisis." McLean says: "Among the various ingenious methods which have been devised I could find none that were free from objection, as they almost invariably increase the heart's action, which opposes rather than helps the purpose of their use." The ease with which this "mechanical expansion" can be accomplished *at will* by the total of the one to two hours in each day's interrupted use of this In- and Exhaler, is apparent to even a lay observer. It is evident, too, that this is without any undue disturbance of the heart's action whatever, because of the *adjustibility* of the instrument's two valves. Special reference is made to the *exit valve* because it is only during *expiration* (not with *inspiration* as in faulty methods usually employed) that this "mechanical expansion" can be obtained. The most delicate bedridden invalid can lie near a window and breathe in, through a tube attached to this inhaler and extending out doors, the cold lung-expanding air, medicated to suit with mentholated, formalined, eucalyptized, etc., vapor, and according to his or her strength compel its entrance into the finer tubes and vessels of the lungs. The heart meantime is only helped in its action, for the limit of the instrument's use is suggested to be the reddening of the face, *i. e.*, the congestion of the body's periphery by the driving outward of the blood from the impeded and paralyzed pulmonary vessels. Dr. McLean's endorsement of the pneumatic cabinet, and then his criticisms of its impracticability and cost furnish an excellent recommendation for this convenient little pocket device, easily made adjustable to every one's needs.

I may attempt to answer the question propounded, where the author instances Reynard's experiment proving that a rabbit confined for a month in an atmosphere reduced in pressure to the equivalent of that at 6000 feet elevation, developed the same blood changes as in "rabbits transferred from sea level to a climate at 6000 feet elevation," namely, "Would the same changes in the blood have been produced in an animal breathing the same rarefied atmosphere of 6000 feet with the density of atmosphere pressing upon the external surface of the body as exists at the sea level?" That is, was the improvement due to the rarefied air alone which the animal breathed, or was it due to this combination with the diminished air pressure upon the surface, or was it due to the decreased pressure on the external surface alone? I should say that you can not disassociate the dual effect in explaining the total benefit invalids receive in resorting to a high altitude. On the one hand you have the increased pressure (Dr. McLean's "mechanical expansion") due to the positive necessity to breathe a fifth more air to get the same amount of oxygen at a mile above the sea; and on the other hand you have the *suction* of the blood from the thorax and closed areas toward the periphery.

This latter is similarly explained, but the *reverse* of the congestion of the spinal cord and proportionately of all partially closed areas (as in the coverings of the brain) manifest in the caseous disease. This is the effect produced in workmen subjected to toiling in an atmosphere of greatly reduced pressure.

But the internal increased pulmonary air-pressure and the external diminished pressure of a high altitude atmosphere may be variously substituted for and varied in their proportionate effects by mechanical devices and systems of exercise. For instance, in the pneumatic cabinet, a person breathing the outside air, with the air around him reduced, has the proportionate drawing of the blood into his peripheral vessels correspondingly exaggerated according to the diminished pressure reached in the cabinet. On the other hand, exercise can be chosen, as Dr. McLean has so well shown, which will increase the "mechanical expansion" of the peripheral air cells and tubes of the lungs, with no dependence at all upon the suction effect mentioned of a circumambient atmosphere reduced in pressure. The inhaler referred to, if faithfully used, can do this. In fact, I believe the proportionate manifestation of tuberculosis in the lungs, as compared with other organs, would be greatly lessened and a good percentage of consumption be prevented if there existed the determination and will power, especially among the young, to persistently practice mechanical expansion by this, or possibly by some equivalent method. To use the words of Dr. McLean, "the price of health is vigilance and effort. If the phthisical patient would live and be healthy he must work for it, and in the way I have indicated or by some similar method, or he will miserably perish, notwithstanding he may swallow all the drugs in the dispensatory and be injected with all the serums and specifics, so-called, which are now obtainable. The expansion method of treatment is *nature's method* and is helpful in every stage of the disease, except where there is active hemoptysis from organic changes."

Let me urge the thoughtful perusal of Dr. McLean's paper.

CHARLES DENISON, M.D.

Prescribing Ready-made Compounds.

CHICAGO, Feb. 9, 1898.

To the Editor:—In the prevention and successful treatment of disease our science culminates and becomes an art. Therapeutics, the philosophic adaptation of remedial agents to the correction of pathologic conditions, the cure of disease in the human organism and its restoration to that physiologic equipoise we dominate health, is the full consummation of science and art. No one unfamiliar with physiology and pathology, pharmaco-dynamics and therapeutics can prescribe for any disease in a scientific manner. Therapeutics must be regarded as first among the principles of scientific medicine by learned and cultured members of our profession. The adaptation of means to the accomplishment of wisely purposed ends in the practice of medicine and surgery, implies much as to acquirements and knowledge? Every case is stamped with an individuality by which it is differentiated from all others. We find special perversions of functions and pathologic tendencies having relation to the assemblage of abnormities presented by the case. The educated physician addresses himself to the task of securing a mastery of every factor and of meeting every indication essential to final victory.

When men of rare endowments and an encyclopedic fund of knowledge recognize the necessity for clear definite information and long investigation before authorizing the use of remedies in many cases, how can we reconcile the conduct of many with the obligations imposed, who simply order some nostrum, ready-made formula or trademark preparation? How can the manufacturing man even though he be a pharmacist, prepare such a combination of drugs as to adapt them to the cure of the hundreds of diseases met with each year? Drugs and chemicals are modified in their action upon the human organism by age, sex, habits, idiosyncracies, temperament, constitutional taints (acquired or hereditary), avocation, climate, condition of the system at the time of administration, etc. Men who use these ready-made cure-alls forego the exercise of those powers of ratiocination in the adaptation of remedies to each individual case, according to its peculiarities and needs, which ever and always distinguish the learned from the ignorant. They insult the educated pharmacist by presuming that he could not prepare any combination required by the formula they wrote: and they only too often make clear the fact that they are incapable of originating such a combination of ingredients as the complexities of the case demand.

Prof. Geo. B. Wood, the scholar, scientist and author, in his great work published in 1860, entitled, "Therapeutics and Pharmacology," uses this language touching ready-made formulæ:

"It leads to an indolent reliance on mere authority by sparing the trouble of thought, and greatly conduces to an empiric and routine practice, neither creditable to the physician nor profitable to the patient. The author has preferably sought to give principles, by which the physician himself may construct formulæ suitable to each special case. He has endeavored to point out in reference to each medicine the peculiar circumstances which render its use appropriate, and the modification in doses it must undergo to adapt it to the varying circumstances of different cases, or the same case at different times. He has also called attention to the medicines with which in each special case it may be appropriately combined to aid or qualify its action. With this knowledge and that of the pathologic conditions to be corrected, the educated physician will be qualified to form much more appropriate associations or combinations of medicines, and to regulate much more correctly the proportions of the several ingredients in correspondence with the indications than any formulary can possibly do for him; nor can any medical man be considered educated or duly instructed until he is capable of constructing such formulæ for his own use and purposes."

The educated physician and educated pharmacist have delicately allied duties in their relations with the public, and no educated physician should allow his prescriptions to go to a mere trader in drugs: nor should a pharmacist ever commend an illiterate, uneducated physician. We should stand in an honorably helpful relation to each other and strive to excel in the breadth of our attainments, the excellence of our work.

W. T. AKINS, M.D.

Appendicitis: Comments Upon Dr. Haughton's Letter.

NEW YORK, Feb. 15, 1898.

To the Editor:—In the JOURNAL for Feb. 12, 1898, I find a reply from Dr. Haughton to Dr. Carstens which seems to fail to comprehend the subject of appendicitis in just the proper way. Perhaps there is no subject in medicine more thoroughly understood than that of appendicitis. The pathology, etiology, symptomatology and anatomy are all so completely recorded by our authorities that it is only the men who are too busy to read the works of authorities who imagine that there is still much room for discussion upon the subject. It has been demonstrated and recorded that the operative death-rate in acute and in chronic appendicitis without abscess, is only a fraction of 1 per cent. at the hands of several of our American surgeons.

It has been demonstrated and recorded that the men who represent diagnostic acumen of the highest order are powerless to make a prognosis about the outcome of any given case of appendicitis. It has been demonstrated and recorded that so large a proportion of "cured" appendicitis patients carry concretions and mucous inclusions and tubercular foci, and entozoa, and chronic abscesses that the eventual death-rate in appendicitis is not likely to show less than 25 per cent. death-rate under any form of medical treatment.

Curiously enough the reports of long lists of cures under medical treatment have seemed to be rather dishonest in their nature, and they bear the ear marks of a spirit of controversy rather than of an interest in pure science. A medical report on appendicitis cases should have several clearly defined features. A statement about the length of time of observation, of number of deaths, of number of occurrences of acute symptoms, of interval palpation findings, and of the interval condition of general health of each and every patient. I am acquainted with several physicians whose love for truth was so much greater than their love for controversy that they began to get statistics of this sort, but unfortunately for statistics they soon decided that their appendicitis patients must be operated upon promptly.

Apparently every physician who publishes long lists of appendicitis cases cured by medical treatment knows in his heart that he is doing wrong. When he congratulates a patient on getting well without operation he knows in his heart that that patient is very likely indeed to be carrying at least a mucous inclusion, and that he is not a cured patient. It is almost incomprehensible that men whose duty it is to devote their lives to the relief of suffering should be so fond of controversy that they can not be honest to themselves, or to their sacred profession, or to the people whose precious lives are entrusted to their care. Dr. Haughton has quoted one writer who published a list of appendicitis cases cured by medical treatment. I have challenged this writer's report, and although he has privately stated that he will not look up his cases, and that he will not tell the profession what has become of them, I shall keep trying in various ways to get him to do it, and I hope to get a general report in the interest of science before the matter is allowed to rest. I may have to bear a great deal of personal abuse and may be put to much trouble, but it is all for the sake of humanity, and that makes one's labors seem light. Clouds are coming over many a happy home in this fair land on this very day because the family physician who conscientiously tries to do the very best thing for his appendicitis patients is misled by controversial reports from physicians who do not realize that their irresponsible influence is carrying death in its trail.

ROBERT T. MORRIS, M.D.

Appendicitis.

MARIETTA, OHIO, Feb. 15, 1898.

To the Editor:—I have been interested for some time past to learn how it happens that some doctors have so many cases of appendicitis, upon which they find it necessary to operate. Is it not a fact that most of the so-called cases of appendicitis are primarily impaction of the cecum and colon, which by proper medication can be relieved and avoid the operation? These thoughts come to my mind from the fact that I have been in a very active general practice, medical and surgical, for the past fifty-four years, and have never had but one case that needed operation, and that one in my early service, and far advanced. I lanced it and he soon made a good recovery. I think that with those in which I have been called in consultation, I have treated more than one hundred cases without the loss of one, simply by medication. I have no doubt but the vermiform appendix plays its role in all such cases and was placed there for some useful purpose, although we may not *fully* understand it. I shall in the future as in the past, try medication before operation.

B. F. HART, M.D.

Foreign vs. American Schools.

WASHINGTON, D. C., Feb. 14, 1898.

To the Editor:—It is gratifying to note in the columns of the JOURNAL that several correspondents have had the courage to speak out their convictions as to the supposed advantages of European medical education when compared with those of our own country.

Permit me to say that my personal experience warrants the full corroboration of the statements made by your correspondents. Familiarity with the teaching of the medical schools in our Eastern cities, and frequent trips across the Atlantic the last twenty years, during which I studied at the principal European medical centers, have afforded ample opportunity to make comparison which, without any spread-eagleism, I am forced to say is greatly in favor of my native land. Just why any true American should go into ecstacies over anything German has always been a puzzle to me. While there are many individual Germans whom I respect and admire, candor compels me to say that after much travel around the globe Germans, as a class, are the rudest people I have ever met, and beyond beer and music I found nothing to admire in a country where most things partake of the cheapness and mediocrity of the imported articles labeled *in Deutschland gemacht*. During my stay in that garish but most dull and unattractive city, Berlin, shortly after the Franco-Prussian war, I was constantly taken for *ein Britisher*, and on witnessing an operation it was a common thing to be told that "they do it better in your country," little knowing that I was from the land of the tabooed pig and apple.

Though devoting a year to the study of German medical nomenclature alone before going abroad, I found it impossible to seize more than a general sense of the lectures attended. The study of German, in view of the enormous growth and great spread of English, is a waste of time only equaled by the *German medical journal disease*, or the absurdity of expecting to find in that country what exists in greater perfection in New York, for instance. Indeed, medical education has so advanced in this country of late that it is safe to predict that before many years Europeans will come here for study.

Of course I do not wish to imply that nothing is to be gained by going abroad. If the medical man really wants to learn he will find London, Paris and Rome the best places, and if interested in neurology, psychiatry or criminal anthropology, he will find Italians in the foremost rank. Every medical man who can afford it should visit Europe, not so much with the expectation of professional benefit as for that accruing from attrition with other minds, the wiping away of numerous cobwebs of prejudice, and the still stronger reason that he will return to his native land a better American.

Irving C. Rosse, M.D., F.R.G.S.

Leprosy in Norway and America.

Bergen, Norway, Feb. 1, 1898.

To the Editor:—Allow me to make some corrections of Dr. Caldwell's article in the number of December 18, which you have sent me. Dr. Caldwell says that in our hospitals for the confinement and treatment of lepers were "domiciled over one thousand unfortunates afflicted with that terrible disease." From where or from whom Dr. Caldwell has obtained this information I can not imagine, for we had last summer not more than about three hundred and fifty lepers in our institutions. Later on Dr. Caldwell says that "I, in my visit to the United States found three cases in the hospitals in Chicago and twice as many in New York, as well as encountered several cases of true leprosy upon the streets of each city, all of whom were treated for lupus, syphilis or some other form of skin disease." I regret if any of my Norwegian colleagues has given such information to Dr. Caldwell. The truth is that in Minnesota I found one case and in the City Hospital in Chicago one case, not of leprosy treated for syphilis, but of syphilis diagnosed as leprosy. Now this is not to be wondered at, when the doctors have no acquaintance with leprosy. You will allow me to tell the incident in the City Hospital in Chicago, where I went accompanied by my colleague, Dr. Sandberg of Chicago. A young American doctor led us to the patient, who was a Dane. I saw at once that the man had no leprosy and asked him in Danish, "When did you get your chancre?" "Seven or eight months ago," replied the man. The young American doctor, who understood the word chancre, I suppose, said: "Oh, sir, he does not understand that." "Certainly he understands," said I. "He had his chancre eight months ago." "Oh, dear me," said the young man.

In the streets of the cities I never saw a leper, and I account for disease not spreading from the leprous immigrants of Wisconsin, Minnesota and Iowa by the cleanliness of the people everywhere. I said then and I say still: The first thing a Norwegian peasant, who is not cleanly, learns in America is to wash himself, and that does great credit to American customs. While writing you I will take the liberty to say some words of Dr. Ashmead's letter in the same number. I will not take up a discussion of the Leper Conference in Berlin. I will only say that I still never have seen an instance of "melancholia of leprosy." This affection is a discovery of Dr. Ashmead, but I regret to say that neither I nor anyone else in Norway has any idea of the existence of such an affection. One may meet with lepers who are melancholic, of course, but generally our lepers are of the same mental disposition as other people, and remarkably seldom we see a depression of their good humor, in spite of the disease; the reason is that the brain is never affected in leprosy, and one sees often enough people keep their good spirits in spite of even more fearful diseases than leprosy. I am, sir, yours respectfully, G. A. Hansen, M.D.

The Alleged Castration of Squirrels.

Hudson, Ohio, Feb. 8, 1898.

To the Editor:—In a recent Journal Dr. Taylor has a communication with this heading "Do adult squirrels castrate each other?" A better heading would be "Do any squirrels castrate each other?"

In Vol. iii, page 646 of Owen's "Anatomy of Vertebrates" you will find a description of the male organs of the rodentia. Among other things he says: "The testes undergo a periodical increase of size and *change of position*, passing from the abdomen into a sessile scrotum and being again retracted, after the rut, within the abdomen." This change of position involving the disappearance of these glands, which are very conspicuous during the rutting season, has given origin to the belief that the males were often castrated. The Doctor notes a very significant fact that this supposed castration by another squirrel leaves no visible scar. If a surgeon will perform the operation with his sharpest knife he will leave a scar that will bear witness to his work. Any one who will carefully dissect one of these supposed emasculated males will find the missing testes within the abdomen so reduced in size as to be easily overlooked. M. C. Read, M.D.

Physicians Should be Compensated.

Philadelphia, Pa., Feb. 18, 1898.

To the Editor:—The editorial in the number of your Journal for February 12 upon the subject of "notification of contagious diseases" is very timely. I have never been able to understand why physicians should be forced to make notification of contagious disease without compensation, as is commonly done in this country. In England physicians are paid two shillings and six pence each time they give notice of a case of contagious disease in their private practice, and one shilling if the case occurs in a public institution. This is provided by law. It seems contrary to fundamental justice, if not to law, that the medical profession should be made to perform labor without compensation, and I have often wondered whether the courts would not sustain a resistance of it.

Respectfully yours, Arthur V. Meigs, M.D.

Advertising in Medical Journals.

South McAlester, I. T., Feb. 4, 1898.

To the Editor:—In answer to an advertisement in the *Tri-State Medical Journal* for December, 1897, I received the following literature:

DOCTOR—Do You Cure Your Goiter Patients?

I cure all of mine and receive from $25 to $50 from each of them. The cost of treating a case will not exceed $1. Inclose a 2 cent stamp for particulars.—M.D., Lock Box —, Bloomington, Ill.

When respectable (?) medical journals admit such people to their advertising colums it is certainly time to cry halt. We wonder at the imbecility of the laity when they employ quacks, but what shall we say of the members of the profession who are equally guilty, as proven by the enclosed testimonial?

Such journals are more than "particeps criminis," they are the instigators. Some means should be devised to compel these people to either sail under their true colors or return to the ranks of professionalism. Fraternally,

C. A. Shaw, M.D.

ASSOCIATION NEWS.

The Senn Medal.—Those members of the American Medical Association intending to compete for the medal offered by Dr. Senn for the best essay on some surgical subject, are requested to forward the type-written copies of contributions before March 1, 1898. Address,

J. McFadden Gaston, M.D., Chairman, Atlanta, Ga.

Section on Materia Medica and Therapeutics.—The following papers and discussions have been promised for the meeting at Denver, Colo., June 7-10, 1898:

"Yellow Fever: Its Etiology and Treatment." Discussion by Surgeon-General George M. Sternberg, Washington, D. C.; Prof. John Guitéras, M.D., Philadelphia; Drs. Sollace Mitchell, Jacksonville, Fla.; T. S. Scales, Mobile, Ala.; G. B. Thornton, Memphis, Tenn.; H. M. Bracken, Minneapolis, Minn.; P. E. Archinard, New Orleans, La.

"Aims of Modern Treatment of Tuberculosis." By Prof. Edwin Klebs, M.D., Chicago. Discussion by Drs. Charles Denison, Denver, Colo., and C. H. Whitman, Los Angeles, Cal.

"Serum Therapy of Tuberculosis." By Prof. S. O. L. Potter, San Francisco, Cal. Discussion by Prof. James M. Anders, M.D., Philadelphia.

"The Therapeutics of Pulmonary Phthisis." By Paul Paquin, M.D., St. Louis, Mo.

"Tuberculin as a Diagnostic and Curative Agent, with Report of 250 Tubercular Cases Treated." By C. H. Whitman, M.D., Los Angeles, Cal.

"The Practical Value of Artificial Serum in Medical Cases." By P. C. Remondino, M.D., San Diego, Cal.

"The Use of Remedies in Diseases of the Heart and Blood vessels." By T. Lauder Brunton, M.D., D.Sc., F.R.S., London, England.

"The Mescal Button." By Prof. D. W. Prentiss, M.D., Washington, D. C.

"The Modern Intestinal Antiseptics and Astringents." By William Frankhauser, M.D., New York.

"To What Extent is Typhoid Fever favorably Modified in its Course, Duration, Termination or Sequelæ by the Administration of Drugs?" By Frank Woodbury, M.D., Philadelphia, Pa.

"Strychnin." By J. N. Upshur, M.D., Richmond, Va.

"Methods of Teaching Materia Medica and Therapeutics." By Prof. G. H. Rohé, M.D., Baltimore.

"The Study of Materia Medica and Therapeutics." By H. M. Bracken, M.D., Minneapolis, Minn.

"The Great Therapeutic Importance of a Rational Adaptation of Cathartic Remedies to the Physiologic Functions of the Gastro intestinal System." By E. D. McDaniels, M.D., LL.D., Mobile, Ala.

"Why the Pharmacopeial Preparations Should be Prescribed and Used by the Profession." By Leon L. Solomon, M.D., Louisville, Ky.

"The Use of Electricity by the General Practitioner." By Caleb Brown, M.D., Sac City, Iowa.

The following have also promised papers, subjects to be announced very soon, together with the day assigned for each discussion and paper:

Drs. J. E. Atkinson, Baltimore; Henry Beates, Philadelphia; T. M. Balliet, Philadelphia; George F. Butler, Chicago; Dudley W. Buxton, London, Eng.; J. Solis-Cohen, Philadelphia; N. S. Davis, Jr., Chicago; P. J. Farnsworth, Clinton, Iowa; J. E. Moses, Kansas City; Prof. Joseph Remington, Philadelphia; Drs. L. E. Sayre, Lawrence, Kan.; H. V. Sweringen, Fort Wayne; E. L. Stephens, Fort Worth.

The Chairman will be pleased to receive and place upon the program subjects for discussion and papers.

John V. Shoemaker, M.D., Chairman.
1519 Walnut Street, Philadelphia, Pa.

SOCIETY NEWS.

New Hampshire Medical Society.—The adjournment of the Society to May 30 and 31, 1898, necessitates a change of date, as May 30 is a holiday (Memorial Day); therefore, the annual meeting will be held in Concord, May 26 and 27, 1898.

Atlantic City Medical Society.—The following officers of the Atlantic County Medical Society was elected at a recent meeting: President, W. Blair Stewart, Atlantic City; vice-president, H. C. James, May's Landing; secretary and treasurer, Walter Reynolds, Atlantic City; reporter, W. C. Darnall, Atlantic City; permanent delegate to State Society, Theophilus Boysen, Egg Harbor City.

Medical Society of the State of Pennsylvania.—The next meeting of this society, May 17, 18 and 19, at Lancaster, will be the fiftieth anniversary of the Society's existence. The first day will be devoted to the "Practice of Medicine;" the second to "Surgery;" the third to "Obstetrics." The evening of the second day, will be devoted to an illustrated lecture, by Dr. J. T. Rothrock, Commissioner of Forestry of Pennsylvania, on the "Sanitary Relations of Our Highlands to the State."

The American Pediatric Society is making a collective investigation of infantile scurvy as occurring in North America, and earnestly requests the co-operation of physicians, through their sending of reports of cases, whether these have already been published or not. No case will be used in such a way as to interfere with its subsequent publication by the observer. Blanks containing questions to be filled out will be furnished on application to any one of the committee. A final printed report of the investigation will be sent to those furnishing cases. Signed by the following Committee:

J. P. Crozer Griffith, Chairman, 123 S. Eighteenth Street, Philadelphia; William D. Booker, 853 Park Avenue, Baltimore; Charles G. Jennings, 457 Jefferson Avenue, Detroit; Augustus Caille, 753 Madison Avenue, New York City; J. Lovett Morse, 317 Marlboro Street, Boston.

Americian Academy of Medicine. Announcement and preliminary program of the twenty-third annual meeting to be held at Denver, Colorado, on Saturday, June 4, and Monday, June 6, 1898. The meeting will be held in the Brown Palace Hotel, which has been made the headquarters of the Academy, the management having given special rates for the occasion. It is suggested that rooms be secured early, especially if it is intended to remain to the meeting of the American Medical Association.

It is planned to hold three sessions on Saturday beginning at 10 a.m., at 3 and 8 p.m. Another session will be held on Monday, at 8 a.m., at which time it is hoped all the business can be completed, affording the Fellows an opportunity to attend the meetings either of the Association of American Medical Colleges or the National Confederation of State Medical Examining and Licensing Boards, which meet on this day. This plan contemplates holding the reunion session on Monday evening.

The following papers have been promised. Several others have written expressing a desire to prepare a paper, but as a definite promise has not been given, it is thought wisest not to publish their names. The arrangement is alphabetical, and not in the order in which the papers are to be read:

1. Dr. L. Duncan Bulkley of New York, "The President's Address."
2. Dr. Charles Denison of Denver, "The Advantage of Physical Education as a Prevention of Disease."
3. Dr. Thomas C. Ely of Philadelphia, "The Importance of Training the Special Senses in the Education of Children."
4. Dr. J. Edgar Fretz of Easton, Pa., "Some Criticisms on the Questions of the Medical Examining Boards by a Recent Graduate."
5. Dr. G. G. Groff of Bucknell University, Lewisburg, Pa., "The Necessity of Medical Supervision in School Life."
6. Dr. Bayard Holmes of Chicago, "Growth and Strength and its Relation to Education and Medicine."
7. Dr. Henry M. Hurd of Baltimore, "How Much to Educate the Growing Brain."
8. Dr. Woods Hutchinson of Buffalo, "The Muscular Basis of Education."
9. Dr. Edward Jackson of Philadelphia, "The Care of the Eyes During School Life."
10. Dr. Elmer Lee of New York, "The Interdependence of Healthy Bodies and Healthy Brains."
11. Dr. J. C. Lichty of Clifton Springs, N. Y., "The Modern Sanitarium and its Relation to the General Medical Profession."
12. Dr. Charles McIntire of Easton, Pa., "Snags in the Course of the Medical Examining Boards."
13. Dr. Rupert Norton of Washington, D. C., "The Child's Brain as Illustrated by Recent Neurologic Studies."
14. Dr. F. T. Rogers of Providence, R. I., "The Ethical Advertiser."
15. Dr. J. T. Searcy of Tuscaloosa, Ala., "How Education Fails—Physiologically Considered."
16. Dr. Charles G. Stockton of Buffalo, "The Kindergarten."
17. Dr. James L. Taylor of Wheelersburg, Ohio, "The Amount of Work a Growing Brain Ought to Undertake."
18. Dr. Casey A. Wood of Chicago, "Kindergarten and Primary Grade Work in the Public Schools and its Influence upon the Eyesight."

There is room for the presentation of a few more papers. Fellows desiring to contribute are requested to send the titles to the Secretary promptly.

Many of these papers are planned for the discussion "The Physiologic Side of the Education of Youth," the special theme suggested for the meeting.

The Camden County Medical Society has sent the following letter to Hon. Herbert W. Johnson, Senator; Hons. William J. Bradley, John H. McMurray and Edgar J. Coles, Members of Assembly:

Camden, N. J., Feb. 8, 1898.

Gentlemen:—In compliance with the instructions of the Camden County Medical Society, at a meeting held this day, the undersigned have the honor to call your attention to and to solicit your interest in Senate Bill No. 80, entitled "An Act to Establish a Village of Epileptics," introduced by Senator Daly and referred to the Committee on Miscellaneous Business.

The subject of segregating epileptics for industrial education and medical treatment was brought to the attention of the legislature of this State in 1896, and a bill was passed providing for the establishment of a colony for that purpose which, however, met with the disapproval of the Governor.

At the annual meeting of the Medical Society of New Jersey in 1897, the necessity for this measure furnished the subject of an address by the president, Dr. Thomas J. Smith of Bridgeton and a committee was appointed to present the matter to the legislature.

In emphasizing the importance of this measure, Dr. Smith stated that there were probably from 2000 to 3000 epileptics in this State, 500 of whom were doubtless confined in almshouses, asylums or in private families. These cases impose a heavy burden on the State and the family, and some of them are not infrequently a menace to the comfort and safety of society. Neither the hospital nor the asylum affords the proper conditions for their treatment, since an institution, to meet their highest needs, should possess the facilities for mental improvement, industrial education and physical development, as well as the advantages for medical treatment. These opportunities are afforded in the greatest degree by the colony system, and, where this system has been introduced, the percentage of cures has been materially increased.

The segregation of epileptics into colonies originated with the French in 1848, as stated by Dr. Smith, and the success of the system has led to its establishment in England, Germany and other European countries. In this country, colonies have been or are now being established in Massachusetts, New York, Pennsylvania, Maryland, Ohio, Illinois, Iowa, Wisconsin, Minnesota and California.

It is an axiom in political economy that the prosperity of the State, rests, in no small degree, upon the physical welfare of her citizens; and in this era of unrivaled medical progress, New Jersey should not fall behind her sister States in the intelligent and beneficent care of her people.

With the hope that this measure may meet with your favorable consideration and active support, we have the honor to convey to you this Society's best esteem and to express at the same time the assurance of our high regard.

Very respectfully,
[Signed] E. L. B. Godfrey, M.D., } Committee.
William H. Iszard, M.D.,

PUBLIC HEALTH.

Personal.—Dr. William H. Welch of Johns Hopkins Hospital, has reconsidered his declination of membership in the Maryland State Board of Health, and accepted the appointment.

Compulsory Antitoxin.—According to the *Semaine Méd.* the Government of Bosnia and Herzegovina has rendered the use of diphtheria antitoxin compulsory, both as a curative and preventive.

The Bubonic Plague Still Prevailing.—The recent invasion of Sinnar by the plague caused a riot by reason of the authorities having attempted isolation. The temporary hospitals were attacked, the quarantine camp set on fire, and the mob were dispersed only after the police had resorted to extreme measures. The reported deaths up to January 31 were forty-three.

Health in San Francisco.—The semi-annual report of the Health Department of the City and County of San Francisco, Cal., gives 3,000 deaths for the period from July 1, 1897, to Dec. 31, 1897. The greatest number of deaths occurred in November, viz., 581, and the least in December, viz., 138. The chief causes were: Phthisis pulmonalis, 427 deaths; heart disease, 385; pneumonia, 237; violence, 202; nephritis, 187; cancer, 179. In 257 cases of diphtheria reported there were 44 deaths and in 53 cases of scarlatina, 2 deaths.

Health in Michigan.—The report for January gives the ten diseases most prevalent during the month, as rheumatism, influenza, neuralgia, bronchitis, tonsillitis, pneumonia, pleuritis, diarrhea, inflammation of the kidney and erysipelas. Consumption was reported at 150 places; diphtheria, 73; measles, 63; scarlet fever, 61; typhoid fever, 57, and whooping cough at 31 places. As compared with the previous month, consumption, diphtheria, scarlet fever and typhoid fever, shows a decrease, while measles increased. Compared with the average for January, in the twelve years, 1886-1897, prevalence of consumption showed a marked decrease and remittent and intermittent fever a large decrease.

Health in Michigan during 1897.—From the report of the Michigan State Board of Health we glean the following: During the year 1897 action was taken on 124 more outbreaks of diphtheria than in 1896, 49 less of scarlet fever, 55 less of typhoid and typhomalarial fever, 332 more of measles, 76 less of whooping cough, 6 less of smallpox and 155 more of consumption. In all, 425 more outbreaks were acted on in 1897 than in 1896, and 66 more in 1896 than in 1895. Only two outbreaks of smallpox were reported during 1897, with but fifteen cases and no deaths.

Progress in Official Vaccination with Calf Lymph in England.—At a meeting of the Redruth (England) Board of Guardians, held in October last, a communication was read from the Local Government Board recommending that sixpence per case extra for vaccinations performed with calf lymph would be a sufficient remuneration for the medical officers. The Board added that the guardians themselves could not supply calf lymph except in the case of an outbreak of smallpox. It was eventually resolved that sixpence be allowed in each case where calf lymph was used, although one guardian moved that only threepence should be given.

The Louisiana State Board of Health.—A new board has been appointed by Governor Foster to take the place of that which resigned about the first of this year. The membership of this board comprises men well known in the medical and business communities. The board is constituted as follows: Drs. Edmond Souchon, L. F. Reynaud, Luther Sexton, J. J. Castellanos and H. L. Lewis, and Messrs Stanley O. Thomas, J. D. Hill, Charles W. Castles and Jules C. Denis. These officers went on duty about February 1.

The Efficacy of Antitoxin is strikingly apparent in the official public health statistics recently published by the German Government for the years 1885 to 1895, the latter the first year when antitoxin came into general use. The mortality from diphtheria and croup was less by 49.48 per cent. than the average of the preceding years. The morbidity also showed a similar decrease, varying with the locality from 31.50 to 64.75 per cent. less than preceding years. The reports from Norway are still more conclusive. At Geneva also, the children in a large asylum were exposed to contagion and all but two received preventive inoculation. These two promptly succumbed while none of the rest were affected.

Health in New York During 1897.—According to the *Monthly Bulletin* for December, the deaths reported during the year were 117,085, or 3,600 less than in 1896, being the smallest mortality since 1889. This makes the death rate for the year 18.50 per 1,000 population, while that of the two years preceding was 19.00. The death rate of the Maritime District was 18.90; Hudson Valley, 17.75; Adirondack and Northern, 14.50; Mohawk Valley, 16.00; Southern Tier, 14.00; East Central, 16.00; West Central, 14.50; Lake Ontario and Western, 15.25. The mortality has increased in rural parts, decreased in urban. Infant mortality is lower, 32.6 per cent. As to causes, compared with 1896 there were 1,500 less deaths from diarrheal diseases in 1897, 500 less from diphtheria, 600 less from measles, and a moderate increase in those from scarlet fever. The deaths from grippe early in the year were the same for both years, viz., 3,000. Consumption caused 10.8 per cent. of the whole mortality, or 12,638 deaths in 1897 against 13,265 in 1896.

Disinfection Work at New Orleans.—The board of Health of that city has been very diligently engaged in offering disinfection of domiciles and articles of clothing that have been brought within the range of yellow fever infection, during the late epidemic. The following are paragraphs taken from a circular of information that was prepared and published in the daily papers in December: "The board offers to perform the necessary work of disinfection, without charge, and with the least possible inconvenience to householders. The citizens of New Orleans are earnestly requested to second this effort of the board to free the city of any lingering trace of infection. Applications should be made in writing, and will receive attention in the order of their receipt. In view of the great value of thorough aeration as a means of purifying the interior of dwellings, it is respectfully suggested and urged that every opportunity be utilized to admit a copious supply of dry, cold air and plenty of sunshine into houses where sickness has occurred, and to so dispose bedding, clothing, etc., in such houses as to secure the full benefit of this plan of purification."—*N. O. Medical and Surgical Journal*, February.

New York City Board of Health.—That Board having been put upon the defensive regarding its large production and sale of antitoxins and vaccines, it has caused to be prepared a showing, in the first place, of the excellent results that have flowed from its vaccination methods. For example, it is set forth that since 1874, after the passage of a rule by the Board of Education providing that no pupil should be allowed to attend school nor any teacher employed unless vaccinated, not one pupil or teacher was afflicted with smallpox. President Straus also shows that in no other city in the State are vaccine virus and diphtheria antitoxin manufactured in such large quantities. The following table shows the diphtherial death rate since 1892:

Years.	Estimated Population.	Deaths by Diphtheria.	Rate of Mortality.
1892	1,708,124	2,106	1.23
1893	1;758,010	2,558	1.45
1894	1,809.353	2,870	1.59
1895	1,877,195	1,976	1.05
1896	1,834,077	1,763	.91
1897	1,900,562	1,591	.80

In 2450 cases treated with diphtheria anti-toxin by inspectors of the Board in 1895, 1896 and 1897, there were only 363 deaths. The cost of diphtheria antitoxin, as manufactured by the Board of Health, is $1 an ounce. If purchased at drug stores it will cost $12 an ounce. Manufacturing in large quantities made it possible to produce both vaccine virus and antitoxin at the lowest possible cost. Even at the large price charged by druggists it did not always follow that the vaccine and antitoxin sold by them were pure and fresh.

National Quarantine the Only Means to a Satisfactory End.—Some years ago we advocated in the pages of the JOURNAL time and again the prime necessity of active and satisfactory measures being taken by the National Government to secure adequate protection from the invasion of preventible epidemic diseases, urging the need of a National Department of Public Health, properly organized and equipped as being fully justified by the experiences of the past. The matter, however, was relegated to the Marine-Hospital Service, and we quietly rested on our oars, and have waited patiently to see just what we expected, viz: a failure in a very important and vital field, once! yes, twice and three times! With the culmination and decline of the last visitation, we thought the time opportune to again take up our former line of argument, sincerely hoping that our national law-makers would give this subject the consideration it demanded. The last epidemic and the two preceding ones were reasonably slight as compared with former visitations, but even they caused sufficient loss of life and property interests to have justified far more effective measures of precaution. It has been demonstrated that both cholera and yellow fever can be kept out of the United States—if so, somebody is certainly to blame. The Marine-Hospital Service having proven ineffectual, our national law-makers must shoulder the responsibility if they do not provide something better. With both branches of Congress and the Executive head of the government in the hands of one party—and that party one that has ever shown strong leanings to centralism and paternalism, is it not to be hoped that strong and effective measures on the part of the National Government shall at once be set on foot and the means of relief given in accordance with the demands of the times. The ineffectual efforts of the Marine-Hospital Service, the discordant and irregular methods of State, municipal and local authorities should no longer be tolerated. From one end of the land to the other the people have spoken time and again. Will our law-makers heed their voice and outcry of unison, or will they longer dilly-dally with a question far more important than tariff-tinkering, the currency or acquisition of adjacent islands in either the Atlantic or Pacific. The report from Edwards, Miss., by Associated Press dispatches of January 26, that the yellow fever in that locality has not disappeared gives serious apprehension that the disease may survive the winter and appear again in epidemic form with the coming of warm weather. There has been practically no winter along the gulf coast, and as January is nearly spent, it is probable that there will be no weather sufficiently severe to destroy the germs. If yellow fever appears again on the gulf coast its spread over the entire South can be prevented only with great difficulty, and as much to be dreaded as the disease itself is the faulty and hysterical quarantine that impedes commerce, prevents travel, produces business stagnation and causes many hardships and inconveniences without effectively checking the spread of the disease. The experience of last year gave proof not only of the insufficiency, but of the positive harmfulness of State and local quarantines. Intelligent co-operation between these bodies seems impossible. They are lacking in means, financial and otherwise, to properly grapple with the necessities of the situation, and having no general direction or concert of purpose their efforts are worse than futile. Quarantine is essentially an interstate matter. It must necessarily in some degree effect the regulation of interstate commerce. To be effective there must be general direction and uniform conduct, and that can be given by the National Government only. The continuance of yellow fever on the gulf coast, therefore, with the strong probability that it will again become epidemic in extreme Southern localities with the coming of warm weather, demands the speedy passage of adequate and effective means by Congress. A bill should be passed in time for the Government machinery necessary for an effective quarantine to be organized and put into operation before the beginning of summer. Nashville has no fear of a visitation of yellow fever. The immunity of the table-lands of Middle Tennessee from the spread of the disease has been thoroughly demonstrated, but Nashville has a very near interest in the proper regulation of the quarantine. The trade of the city suffered greatly last fall because of the prevalence of shotgun quarantine throughout the region to the south of us, wherein the representatives of Nashville houses constantly travel. The State of Tennessee has a very strong interest in the establishment of proper quarantine laws, because all of the western portion of the State is subject to the ravages of the disease. The Gulf States are vitally interested in this question, and to every State in the Union by both sympathy and interest, it is a question of paramount importance that should be met in only a practical manner, regardless of old-time traditions of State rights, or party slogan, or a partizan feeling. It is a question that demands the highest order of statesmanship regardless of party success or present or future personal welfare of those to whose solution it is entrusted.—Editorial, *Southern Practitioner*, February.

NECROLOGY.

S. G. Matson, M.D., Viola, Iowa, born in Vermont, March 5, 1808, died in Fayette, Iowa, February 5. His early life was spent in New England, and he was graduated from the Medical Department of the University of Vermont in 1832. In 1845 he removed to Iowa. In 1846 he was a member of the Constitutional Convention which formed the first constitution of the State of Iowa. He was also elected a member of the first general assembly of the State, which met at Iowa City, Nov. 30, 1846, and in extra session, Jan. 3, 1848. Failing by one vote of being elected speaker of the house, he became chairman of the committee on schools and took a leading part in enacting the first school laws of the State. He also prepared and introduced the bill locating the State University at Iowa City, and was afterward a member of its first board of trustees. In politics he was originally a "Jefferson democrat," but united with the republican party at its organization and voted for John C. Fremont for president in 1856. He continued an ardent republican, casting his last presidential vote for Wm. McKinley in 1896. In appreciation of his services rendered the State, by request, a life-size oil painting of Dr. Matson was secured and placed in the Historical Department of the Capitol, at Des Moines.

John Cronyn, M.D., Buffalo, N. Y., died February 11, aged 73 years. Born in Ireland, he located in Toronto, Can., in 1837, and later entered the University of Toronto. In 1850 he passed his medical examinations but did not take the degree owing to the test of oath which required graduates to subscribe to the thirty-nine articles. Being a Roman Catholic he refused to do this and was obliged to go before the Provincial Licensing Board, which admitted him to practice. A few years later the Canadian Government removed all sectarian restrictions and he obtained his degree of M.D. His thesis received the Chancellor's prize. In 1859 he moved to Buffalo. In 1883 he was largely instrumental in the establishment of the Medical Department in Niagara University. He was soon appointed to the chair of professor of principles and practice of medicine, and later made president of the college faculty. He held this position until his death. In 1888 Niagara University conferred on him the degree of Ph.D. and in 1893 that of LL.D. For several years Dr. Cronyn was a member of the board of directors of the Buffalo State Hospital, and was once president of the board. During the last twenty years he has been president of the New York State Medical Society and at different times president of the Erie County Medical Society. He was an honorary member of the Ontario Medical Association.

John G. Truax, M.D., Rush Medical College, Chicago, 1871, died at his home in New York City February 16. He was born in Durhamville, N. Y., March 5, 1848, and for two years after graduation served in the Chicago hospitals, and then went to the Peninsula on Lake Superior, where he remained among the iron mines until 1876, when he went to New York, eventually to fill many responsible positions in social and club life. A recognized authority in pottery, he was also the possessor of the works of many foreign and American artists, wrote considerably for the New York State Medical Association, and participated somewhat in the debates of the New York County Medical Association, before which he first introduced his alcoholic test for urine. His predilections, however, were for hospital work and dealings with large bodies of the community; hence he was a pension examining surgeon, a visiting physician to the Harlem Hospital, a member of the Board of Governors of the New York Juvenile Asylum and chairman of the Board of Trustees of the Mott Memorial Library.

Arnold Stub, M.D., Geneva Med. Coll. N.Y., 1872, died in Brooklyn, N.Y., during the second week in February. Born in Ebling, Prussia, in 1832, he came to this country when 24 years old. He entered the volunteer army during the civil war, served as medical purveyor under General Hancock, and was mustered out as surgeon of the 90th N.Y. Vol. Inf. on Jan 3, 1865, after which date he became a resident of Brooklyn.

Charles J. Bickham, M.D., Tulane University Medical Department, New Orleans, 1856, died at his home in New Orleans on February 14, aged 69 years. He filled many offices of trust in the line of his profession, and was prominent in the late yellow fever epidemic as an expert authority.

Dr. Selwyn Clark, M.D., Rockford, Ill., died February 12, aged 59 years. He was a graduate of Beloit and the College of Physicians and Surgeons, New York, 1865. He served as a surgeon in the 25th regiment, Illinois infantry. His health was shattered during two months' imprisonment in Libby prison. For many years he was a trustee of Rockford Seminary.

William T. Elmore, M.D., Dartmouth, 1888, died from pneumonia in New York City, February 12, aged 44 years. His birthplace was Montgomery, Ala. He went to New York fifteen years ago.

Sumner Laughton, M.D., Bangor, Maine, died February 8, aged 86 years. He was a graduate in medicine from Bowdoin in 1834; was later president of the State Medical Society, an honorary fellow of the Maine Academy of Medicine and a member of the American Medical Association. At the time of his death he was chairman of the Maine Board of Registration.

Stephen W. Van Duyn, M.D., New York University Medical College, 1865, died in Plainfield, N. J., January 25, aged 61 years. He was a war veteran, having been mustered out of the United States service April 13, 1865, as assistant surgeon of the First Regiment New Jersey Cavalry. From 1866 to 1869 he was an assistant surgeon U. S. A., and subsequently was many years in practice in Newark, N. J.

MISCELLANY.

An Anonymous Benefactor.—A benevolent Hamburger, who withholds his name, has bequeathed 250,000 marks for the erection of a hospital with rooms for one hundred tuberculous patients, who are to get bedding, board and treatment for twenty-five cents per day.

Editorship of the "British Medical Journal."—The vacancy in the editorial chair made by the death of Mr. Ernest Hart, has been filled by the promotion of Dr. Dawson Williams, the assistant editor, to the editorship. Mr. C. Louis Taylor, the sub-editor, succeeds Dr. Williams as assistant editor.

Purulent Periperitonitis.—By this name Franke describes a generalized suppuration spreading extraperitoneally, between the peritoneum and fasciæ, all around the abdomen, and reports two cases, one of which recovered and a necropsy was impossible in the other. An abstract in the *Cbl. f. Chir.* rather doubts the correctness of the diagnosis.—*Mitth. a. d. Grenzb. der Med. u. Chir.*, Vol. 2, Nos. 1-2.

Tribenzoylgallic Acid.—A preparation under this name has been brought out, which is said to be prepared by agitating an alkaline solution of gallic acid with benzoyl chlorid and purifying the resulting product by recrystallization after exhausting with boiling water. The compound appears to remain unchanged by the secretions of the mouth, esophagus and stomach, but in the intestines is readily split up, gallic acid being reformed and exerting its specific properties.—*Druggists' Circular.*

Antivivisection in Germany.—Some years ago an antivivisection movement was started in Germany, and the government asked Virchow's opinion on the matter. He took the current textbook on physiology and marked with a blue pencil all the paragraphs in which it stated that the fact had been established by experimentation on animals, and sent the heavily marked book without a word of comment as his reply. The subject was dropped at once, and probably forever in that country.

Encysted Calculus.—Professor Guyon stated, in 1894, that he had never encountered an encysted calculus and doubted their existence, but Ortiz of Buenos Ayres, reports four cases in which he discovered an additional calculus encysted in the wall of the bladder, and observes that probably many others have been overlooked by surgeons in operating. It is difficult to differentiate such a calculus; the only guide is a lack of mobility, and palpitation during lithotomy.—*Anales del Circ. Méd. Argentino*, November.

Chinopyrin.—Chinopyrin is the name suggested by Santesson for a combination which is made by mixing three parts of quinin hydrochlorate, two parts of antipyrin and six parts of water, the mixture being then warmed. The disagreeable effects of quinin are mitigated by this form of exhibition; it is particularly suitable for subcutaneous injection in cases where administration per os was inadvisable. Its antipyretic powers, grain for grain, are somewhat less than those of quinin. The name quinopyrin has also been suggested for this combination. —*Deutsche Medicinische Wochenschrift.*

A Vitiated Policy.—In an action brought by a policy-holder for the recovery of $10,000 from a life-insurance company the justice of a New York court very rightly decided in favor of the defendant. The points of the case were that in the application dated November 15, 1895 the warrant was given that the health at that time was good and also that no physician had been consulted since the previous January. The further agreement was that the policy should take effect only in case of good health at the time of its delivery, which was Dec. 4, 1895. The evidence showed that physicians had been consulted within the limit restricted, that the diseases which caused death were of acknowledged gravity and that the policy was received on the death-bed. The party who held the policy died Dec. 4, 1895.

Section Work in the British Medical Association.—The differentiation of work in the British Association goes on. The number of sections that are to be provided for at the Edinburgh meeting next July will be sixteen. The subjects of anatomy and physiology have been assigned to separate sections; three other subjects, "Neurology," "Medicine in Relation to Life Assurance" and "Tropical Diseases," have grown to the stature that seems to demand separate sectional development. Our own great ASSOCIATION is at present able to get along with a fewer number of compartments, namely, twelve, in the hull of our own craft. What the next specialization will be by the British Medical Association is not easy to foresee.

Dr. Weir Mitchell's Novel.—The *Bookman* states that Dr. Mitchell's recent book "Hugh Wynne," is one of the most popular of those now on the current list. An amazing incident in connection with the book is a critique thereof that has appeared in *The Friends' Intelligencer*, a kind of organ of the Quakerdom of Philadelphia, and that has been separately printed in pamphlet form. While doing full justice to the literary merits of the book, the Quaker reviewer shows up a number of historic mistakes into which the author has fallen in regard to the Quakers of the Revolutionary period, their customs and discipline, together with misaprehensions as to the personal characters of several of the historic characters of the novel. The reviewer regards the novel as an unfavorable picture of the Friends of that period, and in a very gentle but none the less effective manner, exposes what he considers the Doctor's mistakes. If you happen to come across the review be sure to insert it in the copy of your novel, for it is worth preserving.

Reaction Time in Abnormal Conditions of the Nervous System.—Recent investigations in the Yale psychologic laboratory, made in cases of neuritis, locomotor ataxia, alcoholism and hysteria, are recorded in the *Medical Record* of February 5. The results go to show that: 1. Alcoholism shortens the simple reaction time, hysteria leaves it unchanged, and local neuritis, multiple neuritis and locomotor ataxia lengthen it. 2. Local neuritis scarcely lengthens the additional mental processes involved in complex reaction time; alcoholism lengthens them somewhat, while locomotor ataxia, multiple neuritis and hysteria double and triple the normal time. 3. The individual's regularity is much greater than normal in locomotor ataxia and alcoholism, and much less than the normal in the other diseases. The irregularity is specially marked in hysteria for the higher mental processes. 4. Subjects with multiple neuritis, locomotor ataxia and alcoholism are much more distinctly marked off in respect to the tests than normal individuals.

Insurance of Students in Germany Against Laboratory Accidents.—Since the beginning of the academic half-year all students attending the chemic and physical laboratories of the University of Heidelberg have been insured against accidents happening in the course of the lectures, of the laboratory work and of scientific excursions. The insurance premium is paid by the treasury of the University, which has also made a new regulation in connection with the subject requiring the students to pay a small sum in addition to the class fees. This step is surely deserving of imitation by other universities and such advantages ought not to be limited to laboratory work only, for medical students run much greater risk both in the dissecting rooms and as dressers in the surgical clinics, and as clerks in the infection wards of the university hospitals. This fact should be considered by the other universities in the event of their imitating the example of Heidelberg.

Selling Medicine for Trick Purposes an Assault and Battery.—A conviction of assault and battery, in the case of State vs. Monroe, of most peculiar character, was affirmed by the supreme court of North Carolina, Dec. 21, 1897. An individual, Will Horn, had administered to one Ernest Barrett a dose of croton oil, and the oil had had an injurious effect on Barrett. This led to the prosecution of the defendant Monroe for assault and battery. Monroe admitted that he sold the oil to Horn, and at his request dropped it into a piece of candy, but denied that he knew that these parties were playing practical jokes on each other, and denied knowing for what purpose Horn wanted the oil. His guilt as a principal, not as an accessory, the court holds, depended upon whether he knew, or had reason to believe, that the dose was intended for Barrett or some other person as a trick, and not for medicinal purposes. Upon the whole evidence, he was found guilty. The instruction given the jury that if the defendant knew or had every reason to believe, and did believe, when he sold the oil, that it was intended for Barrett or some other person as a trick or joke, and not for a medicinal purpose, the defendant would be guilty of assault and battery; also that it was not necessary that it should be a poisonous or deadly dose; but that it was sufficient if it was an unusual dose, likely to produce serious injury, the supreme court pronounces unobjectionable, in point of law.

"Governor" Lutz.—Missouri has a governor who has apparently made it a point to antagonize the medical profession at every point, and some aggressive members of the St. Louis Medical Society have proposed that Dr. F. J. Lutz, the well known physician of St. Louis, shall take the place at the next election; Governor Lutz would honor the place.

The New Anatomy.—In a case reported by one of the New York dailies, "a fracture of the 'hypoid ball' in the victims' throat" is reported. It is to be hoped that the Eastern "General Reader" will not be led into his usual bootless search after novelties, notwithstanding the fact that the culprit may have been misguided by De Quincey's brochure, "On Murder Considered as a Fine Art." Chicago, for the present, is obliged to be content with a students' snow-ball fight in which the police were driven off with some few bruises and possibly with what Mark Twain designates as "rows of acrostics."

Hospital Having School Must Pay Duty.—In reply to a letter of inquiry from the superintendent of the Roosevelt Hospital of New York, Assistant Secretary of the Treasury W. B. Howell stated, January, 1898, that there is no provision of law under which scientific instruments, etc., can be imported free of duty for a hospital, although a school of instruction may be connected with such institution. Paragraph 638 of the act of July 24, 1897, provides for the free entry of philosophic and scientific apparatus, etc., when imported in good faith for the use and by order of any society or institution incorporated or established *solely* for religious, philosophic, educational, scientific or literary purposes, whereas, Mr. Howell declares, a hospital is not established *solely* for such purposes.

Primary Tuberculosis of the Nose.—The rarity of this affection makes a case reported in the *Laryngoscope* (February) of interest. The growth, slightly larger than a cherry, and irregular, was located on the cartilaginous septum, attached by a broad base, rather firm to the touch and not freely movable. Under cocain anesthesia the large part of the tumor was removed with a cold wire snare, and the remainder destroyed by the electro-cautery and concentrated solutions of lactic acid (beginning with a 40 per cent. and increasing to an 80 per cent. solution), with iodoform insufflations, were used. The diagnosis was confirmed by the microscope. The patient, after a year and a half, is absolutely well and presents a normal septum.

Serum Diagnosis of Yellow Fever.—In the *New Orleans Medical and Surgical Journal* (February) a series of 100 cases are given by Archinard and Woodson in which the agglutinative test was applied to the bacillus icteroides and controlled by its application to the bacillus typhosus. The authors claim that while their work has been along the lines laid down by Sanarelli, they have made various departures therefrom, not the least of which has been this application of Widal's method of serum diagnosis to the bacillus icteroides. The first fifty were taken from typic yellow fever cases, the second fifty being suspect blood and including cases of typhoid fever, malaria and yellow fever. The authors' conclusions are: 1. Our work demonstrates the practical value of serum diagnosis in yellow fever. 2. That it may be utilized as early as the second day, and be exceptionally present as late as nineteen years after the disease. 3. That a dilution of 1-40 with a time limit of one hour is to be preferred for accuracy of diagnosis. 4. That the dried blood method of Wyatt Johnston is perfectly satisfactory. 5. That the serum diagnosis of yellow fever should be instituted in all countries wherein the disease may exist endemically, or which may be occasionally visited by epidemics. 6. That it is exceptionally valuable at the beginning of epidemics in the diagnosis of early and doubtful cases.

Trained Nurses at the Health Exposition.—At New York's Health Exposition to be held for five weeks, beginning April 25. The most important single department, both from a popular and educational standpoint, will be the Trained Nurses Educational Exhibit, which will occupy one entire wing of 12,000 square feet on the second floor. The display here will comprise everything in modern hospital and sick room service, an historic collection representing the advance in medicine and surgical science during the century. There will be a sick room not only of the rich house with all expensive appliances in furnishings, but also a duplicate of the sick room in the house of the very poor. The manager of this department is Miss Mary E. Wadley of the Bellevue Post-Graduate School. Exhibits have already been secured from nearly all the hospitals in New York and Brooklyn, and the co-operation of all the nurses in the country is desired. During the first week of the Exposition, there will be a convention of the National Association of Trained Nurses at the Grand Central Palace. An attractive corner of the second floor will be occupied by the Domestic Science Department of the W. C. T. U. in charge of Miss Marion A. McBride of Boston. Here there will be noon-day talks on everything connected with this branch of the W. C. T. U. work, such as "Nutrition," "Cooking without Alcohol in the Home and Hospital", etc., and afternoon receptions and 5 o'clock teas daily.

Does Not Appreciate Some Fine Distinctions as to Expert Evidence.—It is laid down in the books that a question to an expert witness should not be so framed as to invade the province of the jury. With this for its text the supreme court of Minnesota says, in the case of Donnelly vs. St. Paul City Railway Company, December, 1897, that the line of cleavage between what does and what does not invade the province of the jury is not capable of definite location by any exact rule applicable to all cases without regard to the subject of inquiry. The mere fact that the opinion called for covers the very issue which the jury will have to pass upon is not conclusive that it is not the proper subject of expert or opinion evidence. For example, sanity or insanity is the subject of expert testimony, although that may be the sole issue to be determined by the jury. Continuing, the supreme court says that neither does it appreciate the fine distinctions sometimes sought to be drawn between asking an expert whether in his opinion, certain causes might produce certain results, and asking him whether, in his opinion, they did produce such results. It is well settled that the opinions of medical experts as to the cause of death are admissible, such opinions being founded either upon the personal knowledge of the facts in the case, or upon a statement of the nature of the injury or symptoms and nature of the disease as testified to by others. There can be no difference in principle, the supreme court further asserts, between an opinion as to the cause of death and one as to the cause of physical ailments which have not resulted in death. So it holds that when the issue is whether the present bodily ailments of a party were caused by certain injuries, a medical expert may give an opinion as to the cause of such bodily ailments, founded upon a statement of the nature of the injury. the subsequent symptoms of the party and *his present physical* condition as testified by others.

Tuberculosis of the Bones and Joints.—In a report of observations on more than one hundred tubercular joints made by Nichols of the Sears Pathologic Laboratory of the Harvard Medical School (*Boston Med. and Surg. Journal*, January 27), the following conclusions are of interest: Injuries of moderate severity favor the production of the disease. In the bones the disease begins in the epiphysis, and is more extensive than appears on gross examination; hence, in operations for removal of the disease a considerable margin of apparently healthy bone must be removed. Tuberculosis of the joints is generally, if not always, secondary to tubercular disease in the epiphysis of an adjacent bone. Abscess formation is due to extension of the tubercular process to the soft parts; the contents and wall of the tubercular abscesses are different from those of infectious abscesses; partial removal of the abscess wall is harmful. Repair is caused by the formation of fibrous tissue, which replaces and partly encapsulates the tubercular tissue; repair may be incomplete; fibrous tissue may produce fibrous anchylosis, or the tissue may become ossified and lead to bony anchylosis. Paraplegia in Pott's disease is rarely due to direct bony pressure; usually the pressure is caused by tubercular peripachymeningitis; rarely the pressure causes degeneration of the cord.

Kocher's Method of Amputation of the Female Breast.—*Annals of Surgery* for February describes this method at length, as reported to the Section on Surgery of the College of Physicians of Philadelphia by George B. Wood, M.D. "The salient points of difference between this operation and the one mostly in vogue in America, that of Halsted, are: 1, the incisions are different; the axillary incision of Kocher's allowing a free entrance to the armpit, and not necessitating the loss of time required in dissecting back the triangular skin-flap of Halsted's operation. By Kocher the axilla is cleaned from above downward and inward toward the chest, while Halsted makes the dissection from within outward and upward. Here it is claimed for the Halsted operation that the removing of fascia in this direction is easier and attended with less hemorrhage. The vessels supplying the axilla begin above and run downward, and it is easier to dissect out a vessel from the base toward the periphery than in the other direction. . . . But where the operation of Kocher saves time as compared with that of Halsted, is in the removal of the pectoral muscles; it being much easier to strip these muscles downward and inward off the chest and then to cut through the origins than it is to dissect off each rib attachment separately, as is required where the pectoral muscles are removed upward and outward. Also, in the Kocher method no extra dissection of the pectoralis minor is required. By beginning as advised by Kocher the annoyance of having a large, loose mass of tumor, fat and muscle to take care of during the dissection of the axilla is avoided. The idea of sawing through the clavicle in case of involvement of the supraclavicular glands belongs to Kocher, and though it may seem to some unnecessary, it certainly gives a much better chance to dissect the lymphatics from around the vessels.

Washington.

Report of the Health Officer.—The report of Health Officer Woodward for the week ended February 12, shows the total number of deaths during the week to have been 106, of which number 48 were white and 58 colored. Among the principal causes of death were: Diseases of the nervous system, 14; urinary, 9; circulatory, 7; respiratory, 26; 3 from la grippe, 1 from diphtheria; 3 from whooping cough and 1 from measles.

Microscopic Society.—At the recent meeting of the Microscopic Society, Dr. Robert Reyburn read a paper entitled "Bacteria," and gave the life, history and general description of most of the forms with which the pathologist has to deal. The paper was made more interesting by lantern-slide illustrations.

Medical Society.—At a meeting of the Society held on the 14th inst., Dr. McLaughlin read a very valuable paper, entitled, "The Uric Acid Diathesis in its Relation to Skin Diseases." Dr. Lamb presented the following interesting specimens: pericarditis and pneumonia; ruptured Graafian Follicle from a Cow; teratological specimen.

Physicians Resign.—Four of the most prominent members of the attending staff of the Garfield Memorial Hospital have recently handed in their resignations, thus severing their connection with that institution. The physicians who resigned are: Samuel S. Adams, George N. Acker, James C. McGuire and Joseph H. Bryan. Some time ago, it will be remembered, W. W. Johnston severed his connection with the institution. These gentlemen for some time have disapproved of certain administrative methods of the hospital and recently discovered that some of the lay hospital authorities were clandestinely offering their positions to other physicians in the District. To the credit of the physicians, it may be stated that some declined absolutely to succeed these gentlemen, under the circumstances. There has always been trouble in this institution between the medical men and the laymen on the board, because of the domination of the latter over the physicians, in purely medical questions. It is high time that the profession of the District of Columbia should discipline this institution and demand the respect due the medical men on their board and staff. These gentlemen who have resigned are well known to the profession of this country and an unbiased mind can readily appreciate the loss to the institution resulting from their resignations.

Central Dispensary and Emergency Hospital.—The report of the Central Dispensary and Emergency Hospital for the past month shows the total number of new cases to be 553; total visits, 1869; emergency cases, 292; house cases, 38; deaths, 6; ambulance calls, 44; prescriptions, 2438.

Sanitary Needs of Institutions.—Health Officer Woodward has submitted to Chairman McMillan, of the Senate District Committee, a statement of the sanitary conditions of a number of charitable institutions in the District. Dr. Woodward suggests many changes and improvements and points out many preventable defects which need prompt relief. Chief among these may be mentioned, defective buildings, overcrowding, defective plumbing, deficient bath accommodations, defective light, heating and ventilation and lack of isolating accommodations for contagious diseases.

The Telephone War.—The physicians of the District have joined in the general sentiment against the overcharge, poor service and eves-dropping methods with respect to messages, which are now in vogue by the local telephone company. A large and enthusiastic meeting was held on the 17th inst., at the Medical Association rooms, which resulted in the passage of resolutions denunciatory of the telephone grievance, and the appointing of a special committee to wait upon the Telephone Company for the purpose of securing better service, unlimited use and secrecy in regard to medical messages passing through their central office. The committee consists of Drs. G. Wythe Cook, H. P. Thompson and H. L. E. Johnson.

Washington Obstetrical and Gynecological Society.—The 276th meeting of the Washington Obstetrical and Gynecological Society was held at the residence of Dr. Kelly, No. 1312 15th st., N. W. Dr. E. A. Ballock presented a very interesting paper on "Adenoma of the Breast," which was fully and freely discussed by the members present.

Detroit.

The Regular Meeting of the Wayne County Medical Society was held February 17. Dr. W. F. Metcalf read an interesting paper on "Office Treatment of Gynecic Cases." The Doctor discussed the subject in a general way, giving the most important conditions and symptoms which are found necessary to treat in regular office practice. Dr. Hal. C. Wyman followed with a paper on "A Wound of the Pericardium and Pleura Treated by Suture; Recovery." The Doctor stated in his paper that some ten days previously he had been called to a town in the interior of the State to treat a man who had been wounded in the chest by the bursting of a saw. He found the man lying on his back with a pulse of 140, respiration 56. On examining the man's chest he found a large gaping wound in its wall through which the heart projected at each respiratory movement. The rent included both the pleura and pericardium. Pushing the apex of the heart back into its normal position, the Doctor grasped the torn edges of the pericardium and sutured with catgut. The pleura was then closed and the chest wall hermetically sealed without drainage. The patient's condition at once improved and he is now convalescent. Dr. W. H. Poole presented the report of a very interesting case of rhinolith, which had by its presence in the middle meatus of the left naris produced symptoms of stenosis of the tear-duct of that side.

At a Recent meeting of the Board of Health the resignation of Dr. Samuel Duffield as health officer of the city was accepted, and Dr. Heneage Gibbs of Ann Arbor elected as his successor. This action of the Board has the approval of the majority of the profession in Detroit, as Dr. Gibbs is highly esteemed for his distinguished learning and ability.

Denver.

How May the Mortality in Appendicitis be Diminished? —Dr. Charles A. Powers opened the scientific program by the reading of a paper on the above subject, in which he has given the histories of fifteen cases of acute appendicitis seen by him during the past four months. He classified them as follows: 1. Cases which had developed general suppurative peritonitis when first seen, five. 2. Cases of local appendicitis ten. Five cases in the latter class were submitted to operation, all recovered. In the remaining five cases he had advised against operation, and all of these recovered. Of the five cases of general peritonitis operative interference offered absolutely no chance of recovery. Each of these died. Of the complications met during the operation one deserves particular notice. On operation the whole right side of the abdomen was found to be the seat of old, dense adhesions; the appendix lay in the pelvis; it was long, large and gangrenous and densely adherent to all the tissues about it. On digging it out with the finger a gush of straw-colored fluid came; this fluid was urine. He at once packed the wound with gauze and opened the abdomen in the mid-line and examined the bladder, which was intact. After ligation of the appendix the entire wound was freely packed with iodoform gauze, a glass tube being inserted to the pelvis and another at the upper part of the wound behind the colon. Through these channels the urine found ready egress. The fistula closed at about the sixth day, after which the patient went on to complete recovery. Dr. Powers has no sympathy with the extremists who cry loudly for operation in every case. "We must base our decision," he said, "for or against operation on the evidences taken as a whole." Timely operation is safer than delay, and in doubtful cases an exploratory incision will be attended with less danger than will delay. Dr. P. D. Rothwell gave the histories of several cases in which the symptoms indicated appendicitis but the diagnosis of impacted feces was corroborated by emptying the colon. He favors flaxseed poultices, laxatives and purgatives. Dr. Whitney said that 80 per cent. of all cases of appendicitis recover of themselves. He classified appendicitis into cases: 1, which come abruptly and manifest general infection; 2, localized appendicitis with severe symptoms; 3, mild cases, and 4, cases which begin mildly and rapidly develop alarming symptoms.

Dr. Sewall said he is interested in the prophylaxis of appendicitis which alone could diminish the mortality. The appendix is an organ of low vitality and can not withstand any insults. Impaction is the prime cause.

Dr. Bonney said the majority of cases he had treated were mild. The surgeon he thinks should be called in early. He related a case of a woman 30 years old who presented all the symptoms of appendicitis, and in which the consent for operative interference could not be obtained. On the fifth day convalescence set in. On the tenth day she developed a chill, pain in cardiac region, pericarditis, pleurisy and then pneumonia and lastly nephritis with fatal termination. Probably the appendicitis preceding had much to do with the course of the succeeding phenomena. Dr. Leavitt called attention to the need of an early consultation in cases of appendicitis.

Dr. Hershey said he believed in preventive measures, and believes that in the majority of cases an acute or chronic enteritis can be traced to have been the cause. He thinks that cases requiring surgical interference are very few indeed. Dr. Freeman said his rule is that if within forty-eight hours the symptoms do not tend to increase in severity he treats it expectantly. All cases starting with violence, he operates at once. He does not operate on cases seen on the fourth or fifth day, but waits until the seventh because of the adhesions that are being formed during that period, and which are the barriers nature throws out. If the appendix forms part of the abscess he lets it alone. Patients having suffered from repeated attacks of appendicitis, and who live outside the reach of a surgeon he advises an operation between the attacks. Dr. Rogers referred in his remarks to the great injustice done by the daily papers to the cause of surgery in general and appendicitis in particular. The cases that recover are not reported, but fatal cases receive a write-up, especially if the patient happens to be prominent in the walks of life. He mentioned a certain town where the physicians dare not operate on appendicitis. If they did, it would be at the risk of their lives. Dr. Grant recommended very early operation, and believes that should all operations be performed the first twenty-four hours the statistics would show different figures. Dr. Lobingier also favors early operation; urged the advisability of consultation with surgeons. Reported a case of a woman who was operated on twenty-seven hours after the initial symptoms. Pus was found in abdominal cavity, but the patient recovered. Dr. Nichols took exception to Dr. Freeman's views. Under no circumstances does he leave the appendix in the abdomen. Dr. Wetherill made an analogy between the appendix and Fallopian tubes. The successful cases he thinks are due in a great measure to the skill and dexterity of the operator, and a general surgeon can not expect the results obtained by a Joseph Price or John B. Deaver.

Letters were read from Senators Wolcott and Teller in answers to resolutions passed at its last meeting, protesting against the passage of the bill for further protection of cruelty to animals in the District of Columbia. Both Senators express their willingness to interpose the passage of the bill.

Resolutions on Vivisection Passed at the Stock Growers' Convention.—At the convention of the national stock growers held recently in this city, the following resolution was unanimously adopted:

Whereas, Viewing with alarm that a bill before the present Congress, known as the anti-vivisection bill, purporting to be antagonistic with scientific methods used in placing knowledge in the minds of scientists, for the protection of live stock and prevention of the spread of disease which can alone be acquired by scientific methods; be it

Resolved, That we, the representatives of the live stock interests of the United States, in convention assembled in Denver, Colo., under the call of a national convention of live-stock men for the purposes of protection of the industries we represent, call upon the Congressmen and Senators of the State here represented to cast their vote against any measure that will prevent scientific research to be continued in the interests of the animal kingdom.

From the further fact that immediate action is about to be taken on the above bill, it is further resolved that the secretary of this convention be requested to convey this resolution to the Congressmen and Senators of the States at interest at once.

Meat Frozen Four Years Ago.—Whether there are such epicureans who will relish viands four years old is a matter for gastronomes to decide. Our health commissioner, without waiting for a decision from the connoisseurs, has seized and destroyed 40,000 pounds of such venerable article. It is said that the killing was done in Omaha, Neb., in 1894, frozen and hung in a refrigerator, and the dealers waited for a favorable opportunity to feed with it some community which does not know of its antecedents.

Next Meeting of the American Medical Association, June 7 to 10, 1898.—At a recent meeting of the Committee of Arrangements the following has been reported: The medical profession of the city have subscribed the amount of $6000. The Committee on Meetings reported that the Gulf Railroad has published 20,000 copies of a pamphlet entitled "Colorado, About its Climate." The Committee on Hotels has gotten out an attractive leaflet giving the hotels and principal boarding-houses of the city. The Committee on Souvenir Book reported they have in preparation an exceedingly attractive souvenir volume, profusely illustrated, giving information on every imaginable subject of interest in the State, as well as a map of the State and city. It is confidently expected that the railroads will furnish an excursion "over the loop" and to Colorado Springs and Manitou, and that half rates will be charged for transportation and a time limit on all railroad tickets, of thirty days from the date of arrival.

Hospitals.

According to the "Thirteenth Annual Report of the New York Post-Graduate Hospital" from Oct. 1, 1896, to Oct. 1, 1897, 2303 house patients were treated. Of these 823 were babies. In the dispensary 19,017 patients were treated, to which 65,536 visits were made. Of 116 cases investigated as to their being eligible to charity treatment 52 were found deserving, 20 gave fictitious addresses and 44 were turned away. Of the 2303 cases 1326 were treated absolutely without fee, 527 on partial payment and 550 were pay patients.

The Maryland Hospital for the Insane reports Oct. 31, 1897, during the year the number treated was 610. Forty-three patients died and fifty-three were discharged. The percentage of recoveries of the number treated was 6 per cent. Eliminating those cases of over a year's duration, the recoveries were 80 per cent.

Societies.

The following recent meetings are noted:

Alabama.—Cullman County Medical Society, Cullman, February 7.

California.—Pasadena Medical Society, February 10.

Connecticut.—Hartford Medical Society, February 7.

Illinois.—McDonough County Medical Association, Macomb, February 7.

Indiana.—Johnson County Medical Society, Franklin, February 10.

Iowa.—Southwestern Iowa Medical Society, Creston, February 17.

Massachusetts.—Boston Medical Society, February 14.

Missouri.—Academy of Medicine, Kansas City, February 12; City Hospital Medical Society, St. Louis, February 17; St. Louis Medical Society of Missouri, February 19.

Nebraska.—Lincoln Medical Society, February 8.

New Jersey.—Atlantic Academy of Medicine, February 11.

New York.—Albany County Medical Society, February 16; Binghamton Academy of Medicine, February 15; Jenkins Medical Society of Mount Vernon, February 10; Rensselaer County Medical Society, Troy, February 8.

Ohio.—Delaware County Medical Society, Delaware, February 15; Jackson County Medical Society, Wellston, February 8; Muskingum County Medical Society, Zanesville, February 10.

Pennsylvania.—Delaware County Medical Society, Chester, February 10; Lackawanna County Medical Society, Scranton, February 10.

Tennessee.—Smith County Medical Society, Carthage, February 7; White County Medical Society, Sparta, February 10.

Texas.—Hunt County Medical Association, Greenville, February 7.

CHANGE OF ADDRESS.

Bovinine Co., The, from 495 W. Broadway to 75 W. Houston St., New York, N. Y.

Bennett, Alice, from Wrentham, Mass., to Biltmore, N. C.

Blech, G., from Detroit, Mich., to 6236 Sangamon St., Chicago.

Cockey, M. G., from Topeka, to Belvue, Kan.

Herrick, A. B., from Lisbon, N. D., to Santa Rosa, Cal.

Holmes, C. R., from 84 N. 7th to 8 E. 8th St., Cincinnati, Ohio.

Hill, F. E., from 10 W. 9th to 28 E. 9th St., Cincinnati, Ohio.

Norman, J. B., from Hume to Pilot Grove, Mo.

Olsen, A. B., from Chicago to Battle Creek, Mich.

Pomeroy, H. M., from New York, N. Y., to San Diego, Cal.

Sattler, R., from 64 W. 7th St. to Groton Bldg., Cincinnati, Ohio.

Thompson, J. H., from 81 Times Bldg. to 408 Deardorf Bldg., Kansas City, Mo.

Wandless, H. W., from Dallas, Texas, to 272 Madison Ave., New York.

Zinke, E. G., from 413 Elm St. to 18 Garfield Pl., Cincinnati, Ohio.

LETTERS RECEIVED.

Akins, William T., Chicago.

Berry, J. T. B., Brandon, Miss.; Baker, L. B., Erie, Pa.; Brown, R. A., Cotton Plant, Ark.; Brown, Mark A., Cincinnati, Ohio; Blackburn, M. H., Dover, Ill.; Bernays, A. C., St. Louis, Mo.; Baldy, J. M., Philadelphia, Pa.; Brannon, L., Joliet, Ill.

Cronica Medica Mexicana, Mexico City, Mexico; Cleveland Medical Gazette, The, Cleveland, Ohio; Cutter, J. A., New York, N. Y.

Doolittle, George T., Spokane, Wash.

Elliott, H. G., New York, N. Y.; Elliott, A. R., New York, N. Y.

Fairbairn & Sons (Ltd.), Edinburgh, Scotland.; Floyd, R. G., Eureka Springs, Ark.; Fry, Frank R., St. Louis, Mo.

Galloway, D. H., Chicago.

Hayden, A. M., Evansville, Ind.; Hughes, C. H., St. Louis, Mo.; Hoag & Curtis, Springport, Mich.; Helgeson, P. A., Lake Mills, Iowa; Hummel, A. L., Advertising Agency, New York, N. Y.; Herrick, A. B., San Francisco, Cal.

Johnson & Johnson, New Brunswick, N. J.; Johnson, H. P., Long Prairie, Minn.; Jonas, A. F., Omaha, Neb.

Keyser, John, Cincinnati, Ohio; Knott, Van Buren, Sioux City, Iowa; Knopp, C. P., Wyoming, Pa.

Lewis, J. Harry, Kansas City, Mo.; Lewis, LeRoy, Auburn, N. Y.; Lerch, Otto, New Orleans, La.; Lyle, B. F., Cincinnati, Ohio.

Merck & Co., New York, N. Y.; Milliken, John T. & Co., St. Louis, Mo.; Malt-Diastase Co., New York, N. Y.; Mortimer, Dr., St. Louis, Mo.; Meisenbach, A. H., St. Louis, Mo.; Mills, H. B., Philadelphia, Pa.; Medico-Chirurgical Journal, Bristol, England; Manley, Thomas H., New York, N. Y.

Pneumochemic Co., The., Cincinnati, Ohio; Phelan, H., San Francisco, Cal.; Pomeroy, H. M., San Diego, Cal.; Preston, C. H., Davenport, Iowa; Parmele, Charles Roome, New York, N. Y.; Proctor & Collier Co., Cincinnati, Ohio; Pilling, George P. & Son (2), Philadelphia, Pa.

Shoemaker, F., Fort Sill, O. T.; Schering & Glatz, New York, N. Y.; Sternberg, George M., Washington, D. C.; Sefton, Frederick, Auburn, N. Y.; Small, Sidney I., Saginaw, W.S., Mich.; Skinner, Calvin, Malone, N. Y.; Stokes, William R., Baltimore, Md.

Tiemann, George, & Co., New York, N. Y.

Wabash Railroad Company, Chicago; Wiggin, O. C., Kingston, R. I.; Wilde, Julia Cabot, New York, N. Y.; Wilson, R. H., St. Louis, Mo.; White Rock Mineral Spring Co., Waukesha, Wis.; Woman's Medical College, New York Infirmary for Women and Children, New York, N. Y.

THE PUBLIC SERVICES.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from February 12 to 18, 1898.

Capt. Paul F. Straub, Asst. Surgeon, is relieved from duty at Angel Island, Cal., and ordered to report in person to the commanding General, Dept. of the Columbia, without delay, for assignment to duty.

First Lieut. Carl R. Darnall, Asst. Surgeon, is relieved from duty at Ft. Clark, Texas, and ordered to Ft. McIntosh, Texas, for duty at that post, relieving Capt. Frederick P. Reynolds, Asst. Surgeon. Capt. Reynolds, on being thus relieved, is ordered to Vancouver Bks., Washington, for duty at that post.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the week ending February 19, 1898.

Asst. Surgeon G. C. Hubbard, sent to St. Elizabeth's Governmennt Hospital for the Insane.

Asst. Surgeon J. C. Thompson, detached from the naval hospital, Mare Island, Cal., and ordered at once to the "Mohican."

P. A. Surgeon L. H. Stone, ordered to be examined for retirement February 4 and to wait orders.

P. A. Surgeon B. R. Ward, upon completion of temporary duty in New York to proceed home and await orders.

Medical Inspector J. G. Ayers, ordered to assume charge of hospital on Widow's Island in addition to present duties.

Asst. Surgeon H. H. Haas, ordered to the "Vermont."

Surgeon A. C. H. Russell, ordered to duty in the bureau of medicine and surgery February 9.

Asst. Surgeon G. C. Hubbard, ordered home and granted three months' sick leave.

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ORIGINAL ARTICLES.

GASTROTOMY FOR THE REMOVAL OF FOREIGN BODIES IN THE STOMACH.

WITH REPORT OF A CASE, AND A TABLE OF REPORTED CASES OPERATED ON UP TO THE PRESENT TIME.

Read before the Missouri State Medical Association,
at St. Louis, Mo., May 19, 1897.

BY A. H. MEISENBACH, M.D.
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ST. LOUIS, MO.

INTRODUCTION.

Although gastrotomy for the removal of foreign bodies was performed as early as 1602, it is remarkable to note that from 1602 to 1887, a period of 285 years, only thirty-five cases have been reported as operated on. Many cases of foreign bodies in the stomach, no doubt, were not operated on, and perhaps some have been operated on of which no reports have been made. From 1887 to date twenty-two cases have been reported. Gastrotomy, even in the pre-antiseptic and aseptic period, was a comparatively safe operation, only five out of the thirty-five cases operated on prior to 1887 having proved fatal.

The patients on whom this operation was done were usually either lunatics, or fakirs who swallowed the objects for money.

The indications for the performance of gastrotomy for the removal of foreign bodies in the stomach are: 1, the presence of a body that, on account of its size or form, can not pass through the intestines; 2, the presence of urgent symptoms in the patient.

Foreign bodies may remain in the stomach for a long time without causing serious disturbances, and in some cases their presence may not be known (as in lunatics) until discovered after death by postmortem. In this respect the form, size, number and weight of the body play an important rôle. Long bodies, such as knives, table forks, spoons, pencils and bars of metal, usually remain in the stomach and give rise to serious symptoms on account of their weight and form. In cases where small objects are swallowed repeatedly their aggregation will eventually, by their weight, favor an accumulation in the stomach and finally may give rise to serious symptoms, producing dilatation of the stomach and local inflammation, adhesions or perforations. That the long continued presence of foreign bodies in the stomach, although tolerated, perhaps, for a long time, will eventually give rise to disturbance of nutrition and other local conditions seems reasonable. There may be symptoms of a catarrhal condition of the stomach, pains in the pit of the stomach and shifting from one spot to another, often influenced by the posture of the patient. When foreign bodies set up subjective conditions that are progressive in character the patient ultimately grows pale and thin; there may be vomiting, hemorrhage and extreme wasting, eventually ending in exhaustion and death. Where the presence of foreign bodies in the stomach can be established the sooner they are removed the better will be the prognosis, no matter what the character of the body may be.

To the cases that have been reported I have the honor to add the following, which came under my care and observation March 30, 1897. The patient termed himself "The Human Ostrich," and had followed the profession of swallowing glass, metal, etc., for a period of nine years. He presented himself at my clinic, giving the following history:

HISTORY OF THE CASE.

The patient, L. W., "Signor Ranana," aged 22, has the following history:

Family history.—Father and mother living and of very nervous temperament. One living sister.

Previous history.—Patient received a very fair education, attended public high school and college and was within one and one-half years of graduation when he left school. While still at school he witnessed, in March, 1888, an exhibition by a professional glass eater. He paid the "Signor" ten dollars to teach him the art of glass-eating. After experimenting for a few days he found he could perform the same feats. At first he gave private exhibitions. He took great interest in swallowing other objects, such as nails, and practiced sword swallowing also. In 1894 he joined a specialty company. At this time he practiced needle and pin sticking (perforating the skin with needles or pins). Since 1894 he has been continually giving private and public exhibitions, at least one or two a week. He does not remember the quantities swallowed. In the early part of March, 1897, he started out on a trip, and on account of scarcity of funds was obliged to give as many as six to twelve exhibitions daily, in saloons and elsewhere, but he did not swallow much at a time, only a bite or two of glass, four or five nails, screws or cartridges, or a few fence staples. He always carried a supply of the objects, so as to be able to give an exhibition of swallowing at any time. In his repertoire were pearl-top lamp chimneys, two-, four-, six- and eight-penny wire fence nails, barbed wire fence staples, and thirty-two and thirty-eight caliber cartridges. He never swallowed tacks.

The patient states that up to 1897 he never had any trouble. He never was sick, nor did he have any trouble with his bowels. On March 15 he gave a number of exhibitions, and on March 16 a "lump in the stomach" and the first pains were noticed. On March 18 the last object was swallowed, a thirty-two caliber cartridge. He came to St. Louis to seek relief, feeling that he was beginning to get into a serious condition.

Present condition.—The patient is 6 ft. 1 inch in height, weighs 153 pounds, has hazel eyes and curly brown hair. His color is pale, gums spongy and breath very foul. He complains of a weight in his stomach, but has no other pains. His pulse is 76, temperature 98 degrees and respirations 23.

Physical examination.—Patient stripped to the waist. Inspection in both upright and recumbent position reveals nothing abnormal. In proportion to his height he ought to be more fleshy.

Palpation and percussion with patient standing upright, body inclined forward, mouth open and abdominal muscles relaxed. In this position palpation and ballottement reveal distinctly a mass situated in the umbilical and hypogastric regions. The mass (tumor) can be raised, and in descent a distinct impulse is felt against the fingers. The mass is about the size of an ordinary hand.

Palpation and percussion with patient reclining on his back reveals a mass in the umbilical region. Deep pressure clearly outlines the same. Changing the position so that he lies on his right side the mass shifts its position to the right hypochondriac and lumbar regions, and can be clearly defined by palpation. Turning the patient on his left side the mass shifts to the left hypochondriac and lumbar regions. Placing the patient on his back again the mass returns to the umbilical region, and occupies the same position when he arises to his feet.

The manipulations were not associated with any degree of pain, only when deep pressure was practiced the patient would admonish the manipulator to be gentle; it hurt him.

Remarks.—The physical examination alone was sufficient to establish the diagnosis of foreign bodies in the stomach. The patient was willing to have an operation performed, and so was admitted at once (March 30) to the Rebekah Hospital for observation and preparation for the operation. He was placed on liquid diet and orders left to look after the bowels and stools.

The question whether the foreign bodies were located in the stomach or elsewhere was a very important one from an operative and prognostic standpoint. That they were in the stomach was demonstrated to my mind by the constancy of the position of the mass and the position that it occupied. The previous history of the patient was also a valuable point in determining this. The points on which this diagnosis was based were:

1, the position of the mass when the patient was placed in the upright position; 2, the position of the mass when the patient was reclining on his back; 3, the position of the mass when the patient was reclining on his right or left side; 4, the previous history of the patient.

1. The position of the mass when the patient was on his feet or lying on his back. Palpation and percussion demonstrated that it was mostly in the umbilical, but partly in the lumbar region. The mass being a large one and composed, as it was, of heavy objects, the *raison d'être* naturally would be that such a mass would in time have its effect on the stomach and produce dilatation of that part with which it was in contact; gravitating toward the lowest point, this being some part of the greater curvature. Gravitation and dilatation would explain its position in these regions. The only other position that the mass might have occupied would be in some part of the large or small intestine. But this supposition becomes untenable when we critically analyze the possibilities. If the mass had accumulated in the small bowel there would have been symptoms of obstruction and previous history of pain, possibly inflammation. Also, the tumor would not have been as constant in position unless surrounded by inflammatory adhesions that would make a solid, immovable mass. The same would be true of the colon; if in the cecum, we would certainly have had a train of symptoms of either obstruction or inflammation; if in the transverse colon, the position would have been lower. The only other part of the colon would have been the sigmoid or rectum, in either of which the symptoms of obstruction or inflammatory reaction would have been prominent.

2 and 3. Positon of mass when patient reclined on left or right side. The constancy with which the mass would shift to the left or right side and return to the median line when the patient was on his back was a strong argument in favor of its location in the stomach. No other location could explain the constancy of position in either region when the patient lay on either side.

4. Previous history of the patient. In establishing a diagnosis this is of the utmost importance. Such a mass accumulated anywhere else in the gastro-intestinal tract would very soon have given rise to very serious symptoms, either of inflammation or obstruction.

Being so firmly convinced that the foreign bodies were located in the stomach, as determined above, other corroborative testimony was hardly necessary. My diagnosis was concurred in by Professors Lemen, Crandall, Bond and others who saw the case afterward. I might have passed a metallic sound into the stomach, passing an electric current through it, but I did not want to do anything that might injure the parts, which might have been done by probing or the reflex vomiting excited by it. However, on April 5 the stomach was inflated with air, so as to more clearly outline its lower border. It was found below the umbilicus, as had already been demonstrated. It was decided, however, to demonstrate, if possible, the presence of the mass by means of the X-rays.

X-RAY EXPERIMENTS.

On Friday evening, April 2, the experiments with the X-rays were made. The apparatus was Thomson's high tension coil 6 inch spark, and was in charge of Dr. Ernest Rubel of the St. Louis Electric Supply Co. The apparatus worked admirably. The fluoroscope was used first. By it the mass could be outlined as a dark spot about four to five inches in diameter. The patient was placed in a standing position with his back to the tube. The position of the mass was the same as revealed in the physical examination, viz., principally in the umbilical region.

A 14 x 17 Cramer, Banner plate, properly wrapped, was placed on a table on which the patient was laid. The plate was so placed that in its area was comprised the abdominal cavity, part of the pelvis and thorax. The exposure was one hour in duration.[1] The X-rays were so powerful that at a distance of six or eight feet from the tube, and on its side or behind it, the fluoroscope showed the skeleton of the hand distinctly. The tube was placed over the abdomen with its long axis parallel with the axis of the body, the center of the tube about over the location of the mass. The distance of the tube from the body was twelve inches; time of exposure for first plate, one hour; second plate, forty minutes.

The plates when developed did not give as good a shadowgraph as was desired. The lumbar spine and the lower part of the thorax were faintly outlined. There was a shadow marking the site of the tumor which, although not as clearly defined as desirable, yet to the practiced eye demonstrated the presence of some foreign body. This shadow was situated a little to the right of the spinal column and in the umbilical region.

Not satisfied with these plates, further exposures were made, the last on Monday evening, April 6, the evening before the operation. Three exposures were made, ranging from thirty-seven to forty minutes each. On development of the plates it was found that the plates of the first exposure were the best, the one exposed one hour being the best of all. The total time during which the patient was exposed to the X-rays at the various sittings, was nearly five hours.

OPERATION (GASTROTOMY).

April 7, 3 P.M., at the Rebekah Hospital, in the presence of a number of visiting members of the Tri-State Medical Association, and assisted by Drs. Born, Dorsey and others, I performed gastrotomy.

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[1] Since the above experiments were made improved methods of technique have made it possible to shorten the exposures to one-half or one-fourth of the above time.

One-half hour previous to the operation the stomach was washed out with a Pasteurine solution. The anesthetic was chloroform.

Incision from the xiphoid to umbilicus was made in the median line, and anterior wall of the stomach presented in the depths of the wound. It was noticed that the stomach was dragged down considerably, so that the superior curvature presented at about the middle of the incision. Introducing my hand into the abdominal cavity I could feel the mass situated below the umbilicus and to the right of the spinal column. The mass was situated nearer to the pyloric end and this part of the stomach was sacculated. Pulling gently on the anterior wall, I was able to draw the stomach out of the abdominal wound to such an extent as to bring the mass into the bottom of the wound area. Grasping the stomach wall with two small, short bullet-forceps, midway between the greater and lesser curvature in the axis of the organ, I made an incision between the forceps into the "cavum" with a knife, the forceps being held by an assistant. Previous to opening the stomach sterilized gauze was packed all around it and into the wound, effectually shutting off the abdominal cavity. The part of the stomach that was extra-abdominal was kept lifted up by the assistant, and was also protected by sterilized gauze.

The opening into the stomach, into which I could look and see the mass, was two inches in length. I introduced a pair of Bergmann calculus forceps and delivered the articles that were on top in the pile of hardware. I continued this operation with the forceps until I felt that its further use might "jab" the sharp articles into the stomach wall. I had provided myself with various shaped spoons, thinking that perhaps they might be of value to scoop out the articles within the stomach. Seeing the sharp nature of the objects, however, I concluded not to use the spoons, but to enlarge the stomach incision and introduce my hand. The wound was enlarged to four and one-half inches, so that my hand could pass freely into the cavity of the stomach. From the first incision (two inches) there was no hemorrhage, and from the last only a little bleeding from the cardiac end of the wound; this was arrested by putting on a hemostatic forceps. With my left hand I scooped out the remainng articles. I worked very carefully so as not to injure the stomach walls, and also not to cut my fingers on the sharp points of the nails, staples, etc., and on the broken pieces of glass. I had expected to find some of the articles imbedded in the mucosa or walls of the stomach. The objects were clean (kept so by he action of the gastric juices). The iron ones were blued and smooth; those of brass and copper (cartidges and chain) of their natural color and bright. There was a thick glairy mucus between them, the glass especially being surrounded by this mucus. During the operation of removing the objects there was continual secretion into the stomach taking place, o that it was necessary, every now and then, to mop his out by means of gauze sponges. The color of he secretion was greenish black.

To satisfy myself that everything had been removed swept my fingers over the interior of the stomach, specially along the greater curvature, and introduced my index finger into the cardiac and pyloric openings. Everywhere the mucosa was free from pockets; nor could anything be felt in the stomach walls. Being satisfied that everything had been removed, the interior of the stomach was irrigated with sterilized water, a small quantity being poured in and mopped out with gauze sponges. This operation was repeated several times. Inspection of the mucosa did not reveal any ulcerations, simply abrasions here and there; the membrane seemed somewhat thickened, however.

The stomach wound was closed by three rows of sutures. The first was a strong No. 6 silk, threaded on a straight thick darning needle, and was passed through the mucosa in the form of a continuous suture. The second was of the same silk as the former, a continuous suture, and introduced through the peritoneum and muscular coat, so as to bring the peritoneal surfaces into apposition. The beginning of this line of sutures was one-fourth of an inch from the end of the wound, in the form of a Lembert stitch. The first stitch being tied, the rest of the suture was passed, entering a little more than one-eighth of an inch from the lip of the wound, coming out of the wound and re-entering the opposite lip of the wound. The third row was made with No. 2 braided silk threaded on a straight No. 8 sewing needle. This was a continuous Lembert suture, and completely buried the previous layer of sutures.

The stomach was carefully wiped off with gauze sponges, as was also the abdominal wound. The packing of gauze, which was hardly soiled so carefully had the operation been done, was removed from the abdominal wound, everything again "reviewed," and then the stomach was dropped into the abdominal cavity. There was a strong temptation to lessen the size of the stomach by imbricating a portion of the wall, but I concluded to allow nature to assert herself and correct the dilatation.

The abdominal wound was closed by interrupted through and through sutures. Iodoform collodion was applied over the abdominal sutures, and a cotton pad and a bandage applied.

The time of operation was one hour. The list of articles removed from the stomach shows: Twenty-five staples for barbed fence wire; 15 one and one-half inch screws; 6 two inch horseshoe nails; 16 two inch wire nails; 30 one and one-half inch wire nails; 16 thirty-two caliber cartridges; 5 thirty-eight caliber cartridges; 2 pocket-knife blades (broken); 2 inches of brass wash-stand chain, and 2 small staples; total 119 pieces. Eight cartridges passed after operation. There was also one ounce of comminuted glass (electric light globe); making the total number of objects 127, total weight, one pound.

PROGRESS OF THE CASE.

From the time of admission into the Rebekah Hospital, March 30, to the time of operation, April 7, the records show that the patient complained daily of acute griping pains. Sometimes these pains would recur every fifteen minutes. He was kept on liquid diet and bowels moved by salines and enemata.

Bedside record.—On the morning of the operation, April 7, the patient's temperature was 98, pulse 74.

April 7: 7 P.M., temperature 99, respiration 38, pulse 72; belching considerable gas; 9:45 P.M., temperature 99.5, respiration 34, pulse 114; one-thirtieth strychnia given hypodermically.

April 8: 12 A.M., temperature 100, respiration 34, pulse 90; 10:30 P.M., temperature 99.4, respiration 30, pulse 86. Vomited some dark slimy matter, about 3 ozs.

April 9. 12 A.M., temperature 99, respiration 30, pulse 96;

10:30 P.M., temperature 100, respiration 28, pulse 86; vomited dark green slimy liquid.

April 10: 1 A.M., temperature 98, respiration 28, pulse 86; 2:15 P.M., temperature 101, respiration 30, pulse 88. Coughing; inhalation of tinct. benzoin and chloroform. Calomel gr. 1 every hour for eight hours. Examination of lungs posteriotly reveals coarse râles in right lung; 4:15 P.M., temperature 102, respiration 30, pulse 88.

April 11: 1:15 P.M., temperature 101.6; respiration 28, pulse 90; 7:35 P.M., temperature 102, respiration 27, pulse 86. Examination of lungs by Prosessors Lemen and Crandall revealed pneumonia of right lung with solidification at base.

April 12: 12 A.M., temperature 101, respiration 26, pulse 82; 2:15 P.M., temperature 102, respiration 30, pulse 88; 8 P.M., temperature 102, respiration 30, pulse 90.

April 13: 8 A.M., temperature 100, respiration 32, pulse 88; 12:15 P.M., temperature 101, respiration 30, pulse 88; 9 P.M., temperature 101. respiration 30, pulse 88.

April 14: 8 A.M., temperature 101, respiration 28, pulse 90; 4:45 P.M., temperature 101.3; respiration 28, pulse 90.

April 15: 8 A.M., temperature 100.3, respiration 22, pulse 86; 2:30 P.M., temperature 101, respiration 22, pulse 86; 8 P.M., temperature 100, respiration 22, pulse 84. Wound was dressed today. The stitches, which were loose, and the collodion dressing were removod. The bridges of tissue between the stitches seemed to be united. The wound was macerated under the dressings and a large area of epidermis around the wound was exfoliated. A pad of gauze was placed over the wound and over this adhesive strips, taking a good hold on either side of the wound (passed halfway around the body).

April 16: 8 A.M., temperature 100, respiration 24, pulse 84; 4:30 P.M., temperature 100, respiration 24, pulse 86. Wound had discharged very much so that dressings were soaked. On removing the dressings and plaster I found that the parietal wound had become torn open and was gaping. The peritoneum, however, was intact, with the exception of the lower angle, at which there was an omental protrusion about two inches long and one and one-half inches at the base. The wound was carefully cleansed with sterilized water and firmly packed with iodoform gauze, the gauze being so placed as to surround the protruding omentum so as to isolate it from the rest of the wound. No bad effects seemed to follow the opening of the wound.

April 17: 1 A.M., temperature 101, respiration 24, pulse 86; 12:15 A.M., temperature 99.5, respiration 22, pulse 84. Wound dressed and packed as on previous day.

April 18: Condition as on previous day. Wound dressed.

April 19: 8 A.M., temperature 100.2, respiration 34, pulse 84; 4:15 P.M., temperature 100, respiration 22, pulse 84. Wound dressed.

April 20: 8:30 A.M., temperature 100.2, respiration 24, pulse 90; 4:30 P.M., temperature 99.3, respiration 22, pulse 84. An elastic ligature was thrown around the base of the omentum so as to strangulate the protruding portion, having waited until now so as to get firm adhesions to the peritoneum. The only inconvenience caused by this protrusion was nausea at times.

April 21: 8 A.M., temperature 98.4, respiration 22, pulse 84; 5:30 P.M., temperature 100, respiration 22, pulse 86. Omental stump contracted, circulation cut off; twisted ligature tighter; wound repacked.

April 22: 8:15 A.M., temperature 100, respiration 22, pulse 86; 5 P.M., temperature 99, respiration 20, pulse 82. Dressed and packed wound. Cut off the omental tumor, first tying a heavy silk ligature around it.

April 23: 10 A.M., temperature 100, respiration 22, pulse 80.

From this time on the temperature varied from normal to 99.5 degrees F., the pulse from 76 to 80, and respiration from 16 to 20 per minute.

With the general improvement the lung also became cleared up, so that by May 1 all symptoms of consolidation had passed off. The wound is closing up fast by granulations.[2]

REMARKS.

The object in giving the details of this remarkable case is to call attention to several peculiarities. 1. The pneumonia. 2. The non-union of the wound and blistering of the skin.

From the bedside record given above it will be noted that the patient promptly recovered from the shock of the operation; in fact, there was practically no shock at all. On the evening of the day of operation his pulse ran up to 114, temperature, 99.4 degrees, respiration 34, and the condition of the pulse, respiration and temperature during the first three days after the operation shows a perfectly aseptic, normal course. On April 10 it is noted that the patient coughed, and an examination of the lungs indicated congestion. The day following, April 11, examination by Profs. Lemen and Crandall revealed solidification of the lung on the right side. Referring to our bedside record we find the following: 1 A.M. temperature 98 degrees, respiration 28, pulse 86; 2:15 P.M. temperature 101 degrees, respiration 30, pulse 87; 4:15 P.M. temperature 102 degrees, respiration 34, pulse 88.

The patient had no chill, nor did he have much pain. The coughing caused him some pain, but there was no expectoration of pneumonic sputum. Here we have the evidences of a hypostatic pneumonia, although with atypical symptoms, especially when we note the respiration and pulse, a temperature of 102 degrees, and pulse not above 96. Usually, when inflammatory or congestive conditions of the lung supervene with a rise of temperature there is a concomitant rise of pulse, so that with a temperature of 102 degrees we would expect a pulse rate considerably above 100; that has been my experience. The interesting feature about this question is, what caused the pneumonia? It is possible to have hypostatic pneumonia following surgical operations, in cases that are debilitated. It may follow in any case of sickness of long duration where the nutritive powers are below par. Yet I have never had it occur in my surgical practice.

What part did the X-ray play in its production? This question I can not answer positively, only in a conjectural way. It will be noted that the patient was exposed several times, the exposures varying from thirty minutes to one hour. Including the use of the fluoroscope, he was exposed perhaps five hours in all. The conditions, such as chilling the patient, under which the exposures were made might have been a factor in causing the pneumonia. The room in which the exposures were made was of average temperature, 70 degrees F. The patient was exposed having on only a thin undershirt, with lower limbs enveloped in a blanket. The first exposure was made on April 2, five days before the operation and eight days before the first symptoms of the lung complication arose. The last exposure was made the evening before the operation, and four days before the complication arose. The above facts would not bear out the argument that exposure of the patient to changes of temperature caused the pneumonia, because we know that where exposure is a factor in producing pneumonia the onset is rapid, usually ushered in by a chill, increased temperature and high pulse-rate. I can not imagine a pneumonia, such as our patient had, with its atypical symptoms, to follow exposure; so that I believe we can exclude this argument. The only one left would be that the X-rays were the cause.

The extensive use of the X-rays develops the fact that under certain conditions they are not as harmless as may be supposed. Reports of cases of burns of the integument are received. Two have occurred in the Rebekah Hospital, not in my service, however. It is reported that depilation and periostitis occur. These

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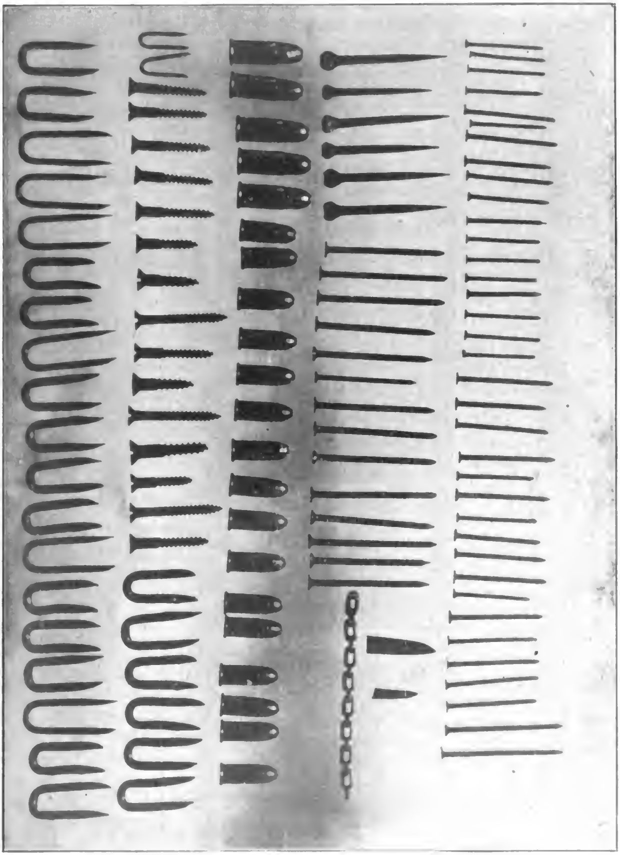
[2] The usual rules as to feeding after laparotomy were observed: No food or drink for first twenty-four hours; then liquids, liquid peptonoids, malted milk. After ten days, oatmeal and solid food. Pneumonia was treated expectantly, free stimulation, etc.



Objects removed from the stomach of Sig. Riuana by A. H. Meisenbach, M.D., at the Rebekah Hospital, St. Louis, April 7, 1897.

GASTROTOMY FOR THE REMOVAL OF FOREIGN BODIES. CASES REPORTED UP TO DATE.

No.	Date.	Literature.	Operator.	Patient, Sex, Age, Occupation.	Foreign body.	Time in Stomach.	Condition before Operation.	Operation.	Adhesions.	After Treatment.	Results.	Remarks.
1	1602	Kaiser, Czerny's Beitr. z. Operat. Chir. 1878, p. 98.	Mathis, Prague.	M., 86, Juggler.	Knife, 21 cm.	51 days.	No great inconvenience.	Adhesions produced by irritant plasters. Knife extracted through incision.	Pyloric end to abdom. walls.	. . . .	Recovery after few weeks.	. . . .
2	1635	Berlin Klin. Woch., No. 7, 1883.	Daniel Schwabe, Koenigsberg.	A. Gruenhyde, M., 22 Farmhand.	Tableknife, 18 cm. long, 1.5 cm. wide.	41 days.	No great difficulties	Incision beneath and parallel to short ribs, stomach hooked up with curved needle. Knife removed through cut made upon blade, which could be felt through stomach walls. Stomach wound left to take care of itself. Abdom'l incis'n closed with 5 stitches.	None.	Abdomin'l stitc'es removed on 2d and 3d days; wd. washed with wine; strict diet, 14 days.	Recovery after two weeks.	First few days bloody urine; first stool also bloody; lived many years and in perfect health.
3	1692	Neu. Mag. f. Aertz., v. Baldinger, xiii. p. 570 1791, Richardson, Bost. Med. and Sur. Jour., Dec 16, 1886.	Wesener, Halle.	Rudluff. "Hallischer Messerschlucker." M. 16. Farm. boy.	Knife.	Seven months.	No great inconvenience.	Seven mos. after swallowing ulceration 3 finger brdths. beneath pit of stomach. Marked redness; 6 days later spontaneous opening with fetid pus; 9 wks. later knife appeared in wd.; fastened by means of silk thread tied around boy's waist; 2 wks. later spontaneous delivery.	Extensive.	. . . .	Complete recovery.	. . . .
4	1720	Meyer, Ueber d. Gastrot. Inaug. Diss. Leip., 1862, p. 12. Mem de l'Acad Royale, 1748, iii, p. 167.	Huebner, Rastemberg	Woman.	Knife, 16.5 cm.	11 days.	3 days no disturbance, then sharp pains; soon knife could be felt on left side.	On 11th day incision in left hypochondrium, where suppuration had occurred; at this point knife had penetrated stomach wall.	Pyloric end to abdom. wall.	. . . .	Recovery in a short time.	. . . .
5	1786	Kaiser, Czerny's Beitraege, 1878, p. 99.	Frisac, Toulouse.	Man. Porter.	Piece of knife, 4.5 cm. long.		. . . .	Incision in epigastrium parallel with linea alba, through which knife could be felt; knife had pierced stomach wall; point grasped with forceps and knife removed; 2 stitches in stomach wound, 1 quill suture in abdom. wd.	Present.	. . . .	Recovery.	Case overlooked until recently; probably authentic; Baron Larrey present at operation.
6	1819	Rust's Mag. f. d. Gesam. Heilk. xiii, 1820, p. 124	Cayroche, in Mendes.	Woman. 24.	Silver fork, 3-pronged, 17x2 cm.	229 days.	Fork felt thro' epigas. In 5 mos. vomiting, severe pain, emaciation, swelling in left side size of hen's egg.	Incision 6 cm. long made over swelling, from above downward, rectus abdominis drawn to one side, stomach opened, fork withdrawn, tines first.	Extensive.	Bleedi'g practiced after opera.; wd. fever; abdomen tend'r; gastric fistula, closed in 4 days; solid food 6th day; left bed 14th day.	Complete recovery in 51 days.	. . . .
7	1822	Adelmann, Prag. Vierteljahresschr., 1876, 131, p. 78. Frariep's Not. 1822. No. 36, p. 224.	Reynard, in Grenoble.	Lajarisse. Young man. Juggler.	Fork.	31 days.	Fork felt through abdominal walls.	Gastrotomy, right side of abdomen.	. . . .	. . . .	Complete recovery.	Patient reported alive in 1875.
8	1823	Kaiser, Czerny's Beitr. 1878, p. 100. Sedillot, Contrib. a la Chir., 1868, ii. p. 456.	Bertherand.	Cavalryman.	Silver spoon.	Several weeks.	Pain in stomach after 1 week, followed by pain in epigastrium.	With exploring needle hard resonant body felt. Incision; removal of spoon with forceps.	General.	Simple dressings.	Rapid and permanent recovery.	. . . .
9	1830	Richardson, Bost. Med. and Sur. Jour. Dec. 16, 1886.	Garcia	. . . .	Stick, 10 inches long.	. . . . .	. . . .	. . . .	. . . .	. . . .	Recovery.	This case is doubtful.
10	1836	Adelmann, Prager Vierteljahresschrift, 1876, Vol. 131, p. 79.	Fidell in Rivaam Gardasee. 1836.	Darmenica Borseiti. Chis cari Inf. Peasant. Widow. 50.	Brass fork-handle and 4 p'g'd fork without handle. 10 cm. long.	About 2½ years.	Terrible pains, violent cramps, insomnia, vomiting after each morsel of food.	Fifteen months after swallowing abscess appeared in right hypochondrium; 2 mos. later large quan. of pus discharged thro' mouth; 1 mo. later open'g of abscess outward; after repeated clos'g and open'g of wd. sharp end of fork appeared, remaining in same position 11 mos; open'g then enlarged and fork removed.	Very extensive.	. . . .	Wound healed in fifteen days.	Convulsions fol. oper. Slight hemor.; food particles discharg'd thro' wd. for 30 hrs. Hysterical subject who became insane after death of son.
11	1848	Adelmann, Prager Vierteljahresschrift f. d. Praktische Heilkunde, 1876, Vol. 131, p. 80.	Tilanus, in Leyden.	Insane woman. 32.	Silver fork, 21 cm. long, also piece of earthenware pyramidal in shape, 2x1 cm.	3 days.	Extremely emaciated; Swallowing followed by dysphagia; presence of bodies determined by palpation and metal stomach sounds.	Under ether narcosis, incision 8 cm. long, parallel to linea alba, from point 3 cm. below ensiform cartilage; stomach not seen but felt, drawn forward and fixed with 2 forceps; incision into stomach 2½ cm. long accompanied by free hemorrhage; after repeated efforts fork and earthenware located and extraced; stomach closed with 5 sutures, ends of which were allowed to project from lower angle of abdominal wound; latter closed with simple sutures; secured with adhesive strips.	None.	On first and second days occasional vomiting of greenish-yellow fluid; abdomen somewhat painful, tender and tympanitic; pulse, 2d day, small, weak, 100.	Death morning of 3d day.	Autopsy; plastic exudate in wd. region; stom., liver and abdom. walls glued together; stomach wd. entirely closed; dilatation great; upper third of esophagus wounded and perfor. in region of larynx. Suppurating sinus near thyroid gland.
12	1855	American Jour. Med. Sciences, July, 1856, p. 272.	J. Bell, Walpello, Iowa, U. S. A.	Man. 27. In a drunken fit.	Bar of lead, 10 x ¾ x ½ in., weight 1 pound.	9 days.	No inconvenience at first; on eighth day pain, vomiting and prostration.	Jan. 8, incis. 4 in. long, from umbil. to false ribs, 2 in. to left of median line; incis. into stom. large enough to withdraw bar of lead; allowed to close by contraction of muscular walls of stom.; abdom. wd. closed with suts.	None.	Symptoms of gastritis; injecti'n of morph.; 2 venesect'ns; enemata, abdominal wd. healed in 5 days.	Recovery in fourteen days.	At work on Feb. 19, 1855. Operation done in twenty minutes.
13	1856	Kaiser Czerny's Beitr. z. Operat. Heilk. 1878.	Glueck, America.	. . . .	Tracheal catheter.	. . . . .	. . . .	. . . .	. . . .	. . . .	Death.	. . . .

14	1850	Schmidt's Jahrbücher, 1870, p. 170.	In France.	Military surgeon.	Fork.		. . . .	Gastrotomy.	. . . .	. . . .	Recovery.	. . . .
15	1857	Adelmann, Prag. Vierteljahress. 1870, 151, p. 78.	Bouchet, in Lyons.	Woman.	Silver fork.	. . . . . .	. . . .	Gastrotomy.	. . . .	. . . .	Recovery.	. . . .
16	1858	Richardson, Bost. Med. and Sur. Jour., Dec. 16, 1886.	Holbeck, Wadkinsk.	Peasant. Simeon Wodlon.	Iron fork, wood handl. 21 cm. long.	6½ months.	Loss of appetite, pain, nausea and vomiting.	Between 7th and 8th ribs small fluctuating cavity with fistula secreting fetid pus; metallic body felt, incision made and fork extracted.	Extensive.	Dicharge of cartilagino's portions 7th and 8th ribs.	Death three months later.	Death due to caries of sternum and several right ribs. Autopsy shows perfect adhes. of stom. incision with abdominal walls.
17	1876	Schmidt's Jahrbücher, 1876, p. 172.	Leon Labbé, Paris	Lanseur. 18.	German silver fork, 5 prongs.	2 years and 10 days.	Symp. of asphyxia, ceasing after fork passed larynx; later attacks severe gastralg. with syncope, fail. health; end 2d year frk. prongs felt in region of stom.	Caustics applied first to produce adhesion of stomach to abdominal wall without success; incision 4 cm. long, internal to and parallel with false ribs; with forceps part of stomach grasped and drawn through wound; sutured in position with 8 stitches, incised and fork removed with forceps.	None.	Solid food after 6th day; no fistula remaining after 15th day.	Complete recovery.	. . . .
18	1879	Hacker, Magenoperat. 1886. N. Y. Med. Rec., xv, June 6, 1879.	J. C. McKee. America	M. 28. Laborer.	Copper wire 3 inches long.	Two months.	Wire inserted in nostril; disappear. into pharynx and stom.	Two months after swallowing acute pain to the right and 3 inches below umbilicus. Tumor formed, cut down upon and wire removed from pus cavity.	. . . .	. . . .	Recovery.	It is not definitely known that wire was in stomach.
19	1880	Berliner Klin. Wochen. 1880. Richardson, Bost. Med. and Sur Jour., Dec. 16, 1886.	Billé.		Sponge covering pencil attached to silver wire, 50 cm.	. . . . .	Esophagotomy done first at level of hyoid bone; body could not be grasped.	Gastrotomy done later; Incis. 2 finger breadths below margin of ribs, 3.5 cm. long thro' peritoneum; stom. stitched to abdom. wound; incision 2.5 cm.; sponge at pylorus; seized, removed with silver wire.; was in lower end of esophagus; whole was 35.5 cm. long.	None.	. . . .	Death five days after operation.	. . . .
20	1880	Med. Press and Circular, N. S., xxxii, 1881, p. 821.	L. A. Fleury. South America.	M. Cook	Plated dinner fork.	2 months and 6 days.	No inconvenience except slight naus. and vomit.; two months later jumped from low fence, felt sharp pain in upper part of abdom.; fork prongs felt through walls.	Gastrotomy Sept. 14. Incision 3 in. long, gastric region, external border rectus muscle. Incision around tines of fork. Fork extracted, handle in pylorus, prongs in anterior walls of stomach.	None.	Icewater diet.	Recovery.	Fork swallowed accidentally while patient tried to imitate slight-of-hand performance.
21	1883	Beliner Klin Wochenschrift, 1883, p. 106.	Felizet.	M. 19. Walter.	Spoon.	. . .	. . . .	Stomach inflated with ether so as to be easily seen and grasped.	None.	. . . .	Recovery. 3 weeks.	Small fistula remaining.
22	1883	Richardson, Bost Med and Sur. Jour., Dec. 16, '86, Lancet, '82, II, p. 1014.	Beattie Dean, Hong Kong	Ito. M.	Toothbrush.	5 days.	. . . .	Gastrotomy done on 5th day; transverse incision; brush removed; stomach and abdominal wound sewed up.	None.	. . . .	Recovery.	. . . .
23	1883	Correspondenzblatt für Schweizer Aertzte, 1883, Nos. 23 and 24.	Kocher. Berne.	M. 37.	Coin Probang.	1 day.	Hardly any disturbance.	Incis. 2 cm. below margin of ribs; stom. opening 3 cm. long midway between greater and lesser curvat.; stom. clos. with 10 Lembert stitches.	None.	. . . .	Recovery.	. . . .
24	1883	Centralb. f. Chir., 1884, No. 20; Wiener Med. Woch., 1883, Nos. 51-52.	Gussenbauer. Prague.	M. 29. "Sword-swallower."	Part of swrd 27x2 cm. Jagged end, round p'nt.	2 days.	Emetics and suspension by feet; fever, vomiting and hiccough; not palpable.	After opening of abdom. sword found wholly in stom., lying obliquely from above down to the left; removed with little trouble.	None.	. . . .	Death in two days; septic peritonitis.	Point of blade had pierced stom. wall; other end had lacerated esophagus.
25	1883	Langenbeck's Archives, Vol. 29, p. 609.	Schönborn Königsberg.	F. Young girl.	Hair ball.	Formed gradually.	Tumor in left side of abdom.; supposed to be spleen, omentum or floating kidney.	Laparotomy; long incision in anterior wall of stomach; ball free in stom.; easily removed; stomach wound closed with 66 Madelung stitches.	None.	. . . .	Recovery in 8 weeks.	Both wounds healed by first intention.
26	1885	Centralb. f. Chir., 1884, Vol. 42, p. 708; London Lancet, 1886, No. 3.	Knowsley Thornton.	F. Young girl. 17.	Hair ball, 9 inches long.	Formed grad. fr. comb'gs.	Diagnosed as abdominal tumor.	Abdominal incision in linea alba; stomach incision transverse, to avoid vessels; wound closed with 15 sutures.	None	Sponge missed; abdom. re-open'd day after opera.; sponge found.	Recovery.	. . . .
27	1883	Centralblatt f. Chirurgie. 1883, p. 342; Gazette des Hopitaux, 1883, No. 29.	Gerard Bourguell.	M. 30.	Stick of elm wood, 21.5 cm. long.	6 weeks.	Pain, nausea and vomiting; purgatives used without success.	Six weeks after swallowing abscess formed 4 cm. below margin of ribs; opened; foreign body in bottom; 10 cm. cut off and removed; 40 grams of castor oil, and rest of stick came with stool on following morning.	Extensive.	. . . .	Recovery in 14 days.	. . . .
28	1885	Billroth. Langenbeck's Archives, Vol. 29, p. 609.	Billroth. Vienna.	Girl. 19.	Plate of 6 teeth.	. . . . .	Palpation painless. Nothing detected.	Incis. 11 cm. long beginning 7 cm. below ensiform cartilage in median line, extending obliquely downward to left; stomach drawn forward by 2 thread slings, teeth pushed into this portion and removed; closure with superficial stitches and several Lembert stitches; abdominal wall sutured in three stages.	None.	Ligature discharged through a sinus in the fourth week.	Recovery after the 5th week.	. . . .
29	1885	Langenbeck's Archives, Vol. 33, p. 574.	Credé. Dresden.	Friedrich Möcke. M. 24. Hair dresser.	Plate with 8 teeth and 2 clamps.	1 week.	Pain in pylorus, then nausea, vomiting and sleeplessness and great excitement.	Oblique incision, 12 cm. long, parallel to ribs; stom. drawn through opening, plate felt thro' pylorus; incision through stomach wall 5 cm. long, beginning 2 in. from pylorus; stomach wound closed with 3 rows of stitches; dropped back into abdomen; abdominal wound sutured and dressed with iodoform.	None.	Very little reaction; no vomiting.	Recovery in 21 days.	. . . .
30	1886	New York Medical Record, 1886.	Bernays. St. Louis.	M. 28. Tailor.	Knife 24 cm. long.	30 minutes.	No great inconvenience.	. . . .	None.	. . . .	Recovery in short time.	. . . .
31	1886	Bul. de l'Acad. de Méd., Aug. 24, 1886.	Podaillon.	M. 24.	Plated iron fork 21 cm. long, wt. 59 grams.	15 days.	Diagnosis with electromagnet; positive result.	. . . .	None.	. . . .	Recovery.	. . . .

32	1886	Lancet, '91, I, p. 249; Brit. Med. Jour., Jan., 1893.	Lawson.	M. 37.	Iron wire 7½ in. l. Clay pipestem 2½ in. long.	. . . .	. . . .	. . . .	None.	. . . .	Recovery.	Insane; attempted suicide.
33	1886	Boston Medical and Surgical Journal, 1886, II p. 569.	Richardson.	Jno. McC., M. 37. Teamster.	Plate with teeth.	11 mos.	Constant pain; great emaciation; inability to swallow food; body detected with iron probang, about 2 inches above cardiac opening into stomach.	Incis. 6 in. long in left hypochondrium, 1½ in. below and paral. to margin of ribs, beginning at anterior border of rectus, extending downward and outward; stom. raised with T-forceps, incis. to admit hand and forearm; foreign body located in esophagus and removed with index finger and forceps; stom. closed by 2 layers of sutures, mucous memb. with continuous silk, peritoneal with 56 Lembert; abdom. closed with deep and superficial silk suts.	None.	High'st temp. 101.8 cough, expect. of pus; 3d dy. about 8 oz.; 4th dy. 2 to 4 oz; liquids, ice-cream to end 2d wk., later sol. food plenty; wt. in 4½ mos. 165 lb., stitches cut 7th day.	Recovery. Went back to work in 2 months and 20 days.	First case recorded in which hand was introduced into stomach for the purpose of removing foreign body.
34	1887	Langenbeck's Archives, Vol. 37, p. 234.	Stelzner.	M. 25.	6 pieces wood 8-10 cm. l. ¾ to 1½ cm thk.	23 days.	Serous mem. of stom. pale, mucous membrane engorged.	Gastrotomy and enterotomy with removal of 4 pieces of wood; 9 days after patient's dischar. 2d enterotomy with remov. of 3 pieces of wood.	None.	. . . .	Recovery.	. . . .
35	1887	N. Y. Med. Jour. 1887, Vol. II, p. 481.	Bull	M. 16. Boy.	Peach stone.	9 days.	Stone lodg. in esopha. near cardiac open'g.	Removed through mouth with sponge passed by way of stomach.	None.	. . . .	Recovery.	. . . .
36	1888	Nord. Med. Arkiv. Schmidt's Jahrb., 218.	Berg.	. . . .	Hair ball. Wt. 900 gr.	. . . .	. . . .	. . . .	None.	. . . .	Recovery.	. . . .
37	1888	Jour. Amer. Med. Asso. Centralblatt f. Chirurgie, No. 48.	Witte.	F. 31. Acute mania.	Four prong. fork 7½ in. long.	3 mos.	. . . .	. . . .	Stom. to abdom'l wall; anterior wall of stomach perforat.	. . . .	Recovery.	. . . .
38	1889	Bull. de Chir. Virchow's Jahresbericht, II, p. 524.	Terrier.	M. 19. Butcher.	Fork, 22 cm. long	24 hours	. . . .	. . . .	None.	. . . .	Recovery.	. . . .
39	1889	Sklarek. Inaugural Dissertation. Bonn, 1889.	Trendelenburg.	M. 25. Officer.	Plate with 1 tooth.	Several hours.	. . . .	. . . .	None.	. . . .	Recovery.	Swallowed during sleep.
40	1889	Langenbeck's Archives, Vol. 38, p. 169.	Hashimoto.	M. 36. Hairdresser.	Toothbrush, 16.5 cm. l'ng	7 days.	Anterior wall of stom. perfora. (Peritonitis)	After body was extracted, excision of fistulous opening was done and wound sutured.	Extensive.	. . . .	Death, 3d dy. Peritonitis.	Anterior end of brush handle thickness of leadpencil and split.
41	1890	Gaz. des Hop., No. 51, Virchow's Jahresbericht, Vol. II, p. 514.	Perier.	M. 32. Demented.	New silver coffee spoon.	21 days.	Examination with electric sound gives positive diagnosis.	. . . .	None.	. . . .	Recovery.	. . . .
42	1890	Boston Med. and Surg. Jour., No. 123, p. 177	Richardson.	F. 30.	Open safety-pin.	4 days.	. . . .	Found sticking in posterior wall of stomach.	None.	. . . .	Recovery.	Leadpencil hold'r discharged later per rec.
43	1891	Semaine Med., 1891, I, p. 1. Schmidt's Jahrbuch, No. 232, p. 174.	Heidenreich. (Nancy.)	M. 29. Sword-swallower.	Silver spoon, 20 cm long. wt. 27 g.	14 days	. . . .	. . . .	None.	. . . .	Recovery.	. . . .
44	1892	Johns Hopkins Hosp. Bul. Virchow's Jahresbericht, Vol. II, p. 447.	Finney.	M. 19.	Peach stone.	5 days.	. . . .	Large opening of stomach; removal of stone with sponge drawn down esophagus by sound passed up through stomach.	None	. . . .	Recovery.	. . . .
45	1892	Medical Fortnightly, St. Louis, Mo., U. S. A., May 15, 1892.	Heine Marks, St. Louis, Mo., U. S. A.	John W. K. M. 30. Glass and tack eater.	Pieces of glass, tacks, screws, nails, etc., 16 oz., removed.	At odd intervals during 8 years	One attack of gastro-enteritis in 1890; lasted 1 week. 2d attack 4 days before enter'g hospl., severe pains, vomiting some tacks, screws and nails. Abdom. tender but not tympanitic; appetite nil; gradual decline to state of exhaust'n.	Median incision; stomach raised into wound and hard masses felt; incision 3 in. long in superior curvature; about 13 ounces of glass, tacks, screws, nails, etc., removed; stomach flushed out and apparently all foreign bodies removed; closed with interrupted Lembert sutures; peritoneal cavity sponged out and abdominal wall sutured.	None.	Hypodermic stimulation. Heat externally.	Death a few hours after operation.	No hemorrhage from stom.; no tympanites or peritonitis; postmortem 10 hrs. after death revealed numerous ulcerati'ns and scars in digest. tract, and foreign bodies, about 3 oz. lodged in esopha., stom., large and small intestines and appendix.
46	1893	Lancet, I, p. 20. Centralb. f Chir., '93 No. 36.	Cant.	F. 68. Suicide attempted.	Razor.	6 days.	Severe hemorrh.; abscess of abdom. wall.	. . . .	None.	. . . .	Death fifth day.	Lavage with perm'gnate of potash solu'n.
47	1894	The Medical Fortnightly, St. Louis, Aug. 15, 1894.	Outten, St. Louis, Mo., U. S. A.	J. F. M. 52. Section hand.	Double gastrolith, *a*, 125 cm. long, wt 396.8 gram, *b*, 69 cm long, wt. 220.8 gram.	. . . .	Nausea and vomiting at repeated intervals; dragging pains in region of stomach.	Incision, 6 inches, in linea semilunaris, from top of this transversely across to linea alba; stomach raised into wound, incised, and larger gastrolith removed; Lembert sutures; second incision also transversely to avoid vessels, second mass removed; Lembert sutures; abdomen sutured.	None.	Pneumonia complication; 1 mo. after operation convalescent and walking about wards; consolidation and cough persisted and phthisis developed; pulmonary trouble attributed by Dr. Outten to ether.	Recovery from operation; death from phthisis three months later.	Double incision into stomach was surgical mistake, but was better than to leave needle holes at first suture line.
48	1894	Lancet, I, p. 734.	Wallace.	F. 28.	Plate with 5 teeth.	Several days.	Lodged in lower portion of esophagus.	Introduction of entire hand into stom., remov. of teeth from esopha. with finger and forceps.	None.	. . . .	Recovery.	Swallowed accidentally during sleep.
49	1894	Lancet, II, p. 432.	Gemmel.	M. 43.	192 nails, buttons, hair-ball; total wt. 1 lb. 9½ oz.	. . . .	Anterior stomach wall injured but not perforated.	. . . .	None.	. . . .	Death 4 hrs. after operation from collapse.	Piece of wood and one nail found in abdom. at postmortem; probably escaped when stomach was opened.

50	1894	Lancet, ii. p. 1028.	Mayo Robson.	F. 10.	43 iron nails, 93 brass and zinc wires, 12 larg. nails, 3 buttons, 1 safety pin, 1 sew. needle.	. . . .	. . . .	. . . .	None.	. . . .	Recovery.	. . . .
51	1894	Deutsche Med. Wochenschrift, No 39.	Czerny.	M. 32. Laborer.	3 shut pocket knives.	48 hours.	Swallowed foreign bodies as a means for a livelihood.	. . . .	None.	. . . .	Recovery.	After operation swallowed two pocket knives which passed off per rectum.
52	1895	Lancet, April 6, p. 904.	Swain.	F. 20.	Hairball, 5 lb. 3 oz.	. . . .	. . . .	. . . .	. . . .	. . . .	Recovery.	. . . .
53	1895	Centralblatt f. Chirurgie, 1896, No. 3.	W. of Schuttleu	F. 30. Weaver of shoe uppers of cow's hair.	Hairball, 7.6 cm. diam. wt. 120 gm.	. . . .	. . . .	. . . .	Marked; extensive to periton.	. . . .	Recovery.	. . . .
54	1896	Jour. Amer. Medical Asso., Feb. 1, 1896.	Wm. L. Allen, Davenport, Iowa	Maggie Heinz. F. 16.	Hairball, length 9½ inches, circumference 8½ in.	. . . .	More or less pain after eating, vomiting frequent; emaciation; alternating diarrhea and constipation.	Incl. in median line, from ensiform cartl. down below umbilicus; stom. incl. long. parallel to greater curvature; hairball removed with difficulty; stom. wound sutured in two layers; mucous membrane continuous silk; serous interrupted Lembert.	None.	Codein, ½ gr. hypodermically; milk, liquid peptonoids per rectum; peptonized milk by mouth 6th day; stitches removed 7th day; union by first intention.	Recovery; dischraged cured on 26th day.	Patient was in the habit of biting off ends of hair since 3 years of age; felt tumor during last five or six years, but it did not incrsase in size apparently.
55	1896	Annals of Surg., April, 1896, p. 415.	Morton, Bristol.	M. 27.	Plate with 2 up'r incisors	1½ years.	. . . .	. . . .	None.	. . . .	Death, 8th day.	Swallowed accidentally; death from local suppurative periton.
56	1896	Centralb. f. Chir., No 31. Bericht über den Congress, No. 21, 1896.	Stelzner.	F. 18.	Hairball size of goose egg wt. 180 gms.	. . . .	. . . .	. . . .	None.	. . . .	Recovery.	Habitually bit off the ends of own hair and that of other girls.
57	1897	Deutsche Medicinische Wochenschrift, Jan. 21, 1897	Fricker, Odessa.	Mrs. A. F 32.	1 key, 2 teaspoons, 1 fork, 2 piec. wire, 2 hairpins, 12 piec. glass, 1 window latch, 1 steel pen point, 9 sew. needles, 1 piece of graphite, 1 sm. sh'e button, 1 grapeseed, 1 crocheting needle.	Articles swallowed at various intervals during 3 mos. prior to operation.	At first slight inconvenience, loss of appetite, slight pain, gradual emaciation. All remedies without curative effect. Latterly all symptoms much aggravated; marked swelling in left side from margin of ribs to rim of ilium; fluctuating and very tender; vomiting and constipation.	Incision over swelling, evacuation of pus and withdrawal of crocheting needle; other articles detected in stomach; abdominal incision enlarged, stomach drawn out and incision made not connecting with abscess; incision 4 cm. long, near lesser curvature; all bodies removed without difficulty, except fork; stomach sutured, 2 rows; mucous, catgut; serous, interrupted Lembert silk; abdominal wound packed with iodoform gauze until fifth day, then closed with secondary suture.	Extensive.	Nourishment by enema during first five days later, carefully regulated diet per os; temperature never above normal.	Recovery in 4 weeks.	Articles swallowed during attack of temporary insanity from loss of child, and with a view to suicide.
58	1897	Unpublished.	Von Quast, Kansas City, Mo.	M. 36. Showman.	Nine drams br'ken gl'ss, 2 pock't knives, 5 knife blades, 1 barb wire staple, 3 screws, 1 horse-shoe nail, 16 ta'ks of all sizes, 4 finishing nails, 1 12-penny nail, 85 wire n'ils of sizes 4 to 12.	Not stated.	Emaciated, suffering from want of food and retching.	Incision ensiform to umbilicus; stomach incised so as to introduce forceps and fingers; stomach wound closed by interrupted Lembert sutures.	None of stomach; some of the foreign bodies to the mucosa.	Strych. hypodermic, or by mouth cautiously; rectal enema of warm water and nutrient enemata after 6 hrs.	Death in 48 hrs. from enteritis and exhaustion.	Patient was in wretched condition, but demanded relief. Possibly long exposure to X-rays to diagnose the contents of the stomach and relieve our minds of "fakirism" had something to do in the production of enteritis or peritonitis. There had been considerable hematemesis and blood passing from bowels.

NOTE.—The last case came to hand too late for classification at the time paper was read.

I wish to acknowledge the very valuable assistance rendered by my colleague Dr. W. H. Fuchs, in the tabulating of the cases of gastrotomy for foreign bodies herein given.

effects are not immediate, due to the heat of the electric current, but are remote in their manifestation, occurring sometimes five to ten days after the exposure. This being the case, there must be some effect of the X-rays on the tissues. Sorel, a French surgeon, recently made the statement, in a paper before the Havre Lyceum, that pneumonia can be produced by the X-ray. Having seen this statement in a cablegram from Paris, I wrote W. W. Keen about the case, because his extensive experience in X-ray work makes his opinion authoritative. According to Keen, Sorel is a French provincial surgeon whose statements are trustworthy. Keen also concurred in the opinion that it is possible to produce pneumonia by the X-ray.

Another argument in favor of the assumption that the X-ray caused the pneumonia is the fact that the pneumonia occurred on the right side, and the X-rays were directed principally over this side, because the mass was somewhat to the right of the spinal column when the patient was in the reclining posture.

The non-union of the wound is also an interesting question. In surgical wounds non-union may be due to the following causes: 1, faulty coaptation; 2, strains on the wound, 3, sepsis, 4, certain states of the system, such as extreme jaundice, etc.

The first, third and fourth conditions can be excluded entirely. It might be argued that patient's straining while coughing might have produced it. This might be true, but I have had patients in whom bronchial irritation before the operation (laparotomy) caused coughing spells afterward and, still, union took place. In these cases the precaution was always taken to support the wound by the application of adhesive strips around the body. It has been noted that when the stitches were removed the parts were macerated under the loose epidermis. This does not occur in normal wounds. The history is the strongest argument in support of the theory of the effect of the X-rays. In the cases reported the effects were always remote, as in this one.

Although I can not prove the statement at present. I believe that the complications in this case were due to the X-rays, an X-ray pneumonia and non-union of the wound. The *modus operandi* of the X-rays in these complications is, I believe, that they cause a vaso-motor paralysis, producing a dilatation of the vessels, from which cause local stasis results.

To my knowledge this case is the first on record in which the X-rays have been used to demonstrate foreign bodies in the stomach. Fricker, of Odessa (see case in table), was deterred from using them in his case on account of the extreme weakness of his patient. Fricker's and my case are the only ones reported of gastrotomy for the removal of foreign bodies, since the discovery of the X-rays. This case is also the first reported, in this country, of pneumonia following the application of the X-rays.

POINTS OF INTEREST.

The points of interest in this remarkable case are: 1. The period of time during which the patient has been swallowing objects. 2. The number of bodies found in the stomach. 3. The character of the objects found. 4. The absence of serious subjective symptoms in the patient, and the absence of serious pathologic conditions in the stomach. 5. The complications after the operation, due to the X-rays: *a*, pneumonia; *b*, non-union of the wound. 6. The first case of pneumonia due to the X-rays reported in this country. 7. The first case, on record, of foreign bodies in the stomach on which the X-rays were used to corroborate a diagnosis.

SUMMARY.

Summarizing the data contained in the foregoing table, we have the following:

Total number of cases reported to date, 58. Of this number there were forty-seven recoveries or 81.03 per cent.: ten deaths or 17.24 per cent., and one doubtful, or 1.73 per cent.

Of those cases in which no adhesions of the stomach to the abdominal walls or surrounding viscera were present, thirty-eight in all, there were thirty recoveries, or 78.95 per cent.; seven deaths or 18.42 per cent.; one doubtful or 2.63 per cent.

Of those cases in which adhesions were present, thirteen in all, there were eleven recoveries, or 84.62 per cent.; two deaths, or 15.38 per cent. Of those cases in which the existence of adhesions was doubtful, seven in all, there were six recoveries or 85.72 per cent.; one death or 14.28 per cent. It will thus be seen that the existence or absence of adhesions had, apparently at least, no influence on the mortality rate.

Assuming that the period of antiseptic surgery began with the year 1880, and dividing the reported cases into two groups, i.e., those reported before 1880, and those reported since that date, we have the following exhibit of mortality percentages. 1. Before the introduction of antiseptics: Total number of cases eighteen; recoveries fifteen or 83.33 per cent.; deaths three or 16.66 per cent. 2. After the introduction of antiseptics: Total number of cases forty; recoveries thirty-two or 80 per cent.; deaths seven or 7.50 per cent.; doubtful result one or 2.50 per cent.

A noteworthy fact in connection with the cases enumerated in the table is the short period intervening between the entrance into the stomach of the foreign body or the diagnosis of its presence there, and the performance of the operation, during the period since the introduction of antisepsis. This is probably attributable to two factors: 1. The improved methods and facilities for making diagnoses; and 2, the improvement in surgical technique and the extension of surgical interference since the introduction of antiseptics. Taking into consideration all the cases contained in the table, however, we find that the time intervening between the introduction of the foreign body into the stomach and its removal, is definitely known in only so few cases, that its consideration as a factor of possible influence on the mortality rate would be entirely unsatisfactory. It has, therefore, not been considered separately.

The following is a summary of the foreign bodies removed from the stomach by operation:

Forks in thirteen cases: hairballs in seven; knives in six; plates with teeth in six; spoons in five; pieces of wood in four; pieces of metal wire in four; nails in four; buttons in three; needles in three; tooth brushes in two; safety-pin in two; peach-stones in two; and screws, bar of lead, piece of earthern ware, tracheal catheter, metal probang, part of sword-blade, clay-pipe stem, razor, pocket-knives, hair-pins, pieces of glass, keys, window latch, piece of graphite, and tacks in one case each.

BIBLIOGRAPHY.

Greig Smith: Abdominal Surgery, 5th Edition, Vol. i, p. 498.
Poulet: Foreign Bodies, Vol. i. p. 186.
London Lancet.
Langenbeck's Archiv für klinische Chirurgie, Vol. xxxiii, No. 3.

Journal of the American Medical Association, Vol. xxvi, No. 5, Feb. 1, 1896.
Medical News, Philadelphia, Jan. 1, 1887.
Boston Medical and Surgical Journal Dec. 16, 1886.
Deutsche medicinische Wochenschrift, Jan. 21, 1897.
Gould and Pyles: Anomalies and Curiosities in Medicine.
Medical Fortnightly, St. Louis, Mo., Aug. 15, 1894.

REMOVAL OF THE STOMACH FOR SARCOMA.

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The JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, Feb. 12, 1898, contains an article by Hugo Summa, M.D., and A. C. Bernays, M.D., entitled "The History and Diagnosis of a Case of Carcinoma of the Stomach and the first Operation of Excision of the Stomach in America."

In view of this report it may be of interest to recall a case of sarcoma of the stomach for which excision of that organ was performed by me more than four years ago, antedating some years the now famous case of Schatter of Zurich.

The case is well known in Philadelphia among my medical friends and has on several occasions been referred to in discussion on abdominal topics. The patient was examined by Dr. S. Solis-Cohen and I think Drs. T. S. K. Morton and Steinbach of the Polyclinic staff. Dr. John B. Roberts and other members of the staff were present at the operation. I was assisted by Dr. Frank Talley and one of the resident physicians of the hospital.

The case was reported and the specimen shown to the Pathological Society of Philadelphia by Dr. Alfred Stengel and myself. After careful investigation Dr. Stengel pronounced the case one of sarcoma of the stomach, an exceedingly rare condition. He requested the privilege of reporting the details of the case after he had thoroughly looked up the literature of the subject. I handed him the surgical notes to incorporate in his paper, which he informs me is ready for publication and will be shortly forthcoming. I might mention incidentally that he has been able after four years search to find in the literature but nine cases of a similar character (sarcoma of the stomach).

I append the surgical notes of the case which I handed Dr. Stengel four years ago to incorporate in his article and which he has kindly returned to me.

The patient entered the Polyclinic hospital Sept. 29, 1893 complaining of a tumor in his stomach together with great and progressing weakness and loss of flesh.

An examination disclosed an irregular rounded, nodular and solid tumor filling the whole abdomen from the pubes to the ensiform cartilage. The umbilicus protruded and contained a neoplasm which was unattached to the underlying tumor, about the size of a walnut. The pelvis was free and the tumor rested on the pubic bones; the fingers could easily be passed between the tumor and the pubes. As far as could be determined from the history and examination the kidneys were excluded as a possibility of the origin. The urine was normal. The spleen was likewise excluded, as was also the liver. A diagnosis of malignant tumor was easily arrived at from the nodular, irregular feel of the mass, its quick growth, the rapid loss of flesh and weakness and cachexia of the patient and the umbilical growth. By exclusion it was supposed to be a growth of either the mesenteric glands or of the omentum. If of the mesenteric glands operation was hopeless; if of the omentum some hope existed, especially as the tumor was freely movable. The chances were given to the omentum on account of this very movability and because the history showed that it had begun to grow from above downward. It was even at that time easy to determine that its attachment was above. The case was seen in consultation by the medical and surgical staff of the hospital and all agreed that the only chance of life lay in an exploratory operation and further that such exploration was justifiable. The friends of the family were communicated with and the facts placed before them. They were told that no promise could be given that the man would even come off the operating table alive, but that in an operation lay his only chance. They decided for the operation.

The stomach as a possible source of origin of the tumor was never considered for the following reasons. His bowels had to the last remained in good condition. He had never at any time complained of gastric disturbance of any kind; as he expressed it "my stomach has never given me a day's trouble, it is the strongest thing about me." In proof of the truth of his statement it is to be noted that he spent about a week in the hospital prior to his operation, ate voraciously and digested all he ate. At the time of the operation the stomach cavity was found practically empty. He never vomited.

An incision was made from the ensiform cartilage to near the pubes and the abdominal walls drawn apart. They grasped the tumor tightly as they slipped over its sides and contracted again under the tumor as it was delivered. In doing so many vessels in the omentum, which was spread out over the tumor and adherent to it, began to bleed. From this moment to have ended the operation would have been difficult, as the bleeding could only with difficulty have been controlled nor could the tumor have again been returned to the abdominal cavity and the abdominal wound closed; the operation had to be finished at all hazards. The tumor was lifted up from below and found adherent to all the underlying intestines; these adhesions were readily separated; freeing the tumor in all directions but leaving the mesentery infiltrated with masses of malignant growth. The utter hopelessness of the case was at once seen. The separation of the mass was continued as high up as possible, to a point which afterward was found to be the natural attachments of the stomach. What appeared to be the healthy stomach was found high up and in front closely attached to the tumor apparently in much the same way as had been the intestines beneath. At this point the common concensus of opinion of the surgeons operating, assisting and looking on was that the growth arose from behind the stomach; no suspicion as to its being the stomach being entertained by any one. An effort was made to separate the apparent stomach and the tumor at their point of adhesion but was soon desisted from on account of the danger felt of perforating the stomach wall itself if I worked too near it. The determination was then made to break boldly into the tumor several inches below its junction with the stomach, leaving part of it attached to that organ, remove the balance and thus gain room enough to close the abdomen and finish the operation. A favorable point was fixed upon where there was a sulcus and a finger was forced into the mass and swept freely from side to side. After proceeding for the depth of some inches the finger suddenly entered a cavity and in a moment the whole situation flashed upon me. With several fingers in the cavity a bimanual examination quickly made my suspicions a certainty. The tumor was the stomach. The only healthy part of the organ was the small anterior portion presenting at the upper part of the wound and which had been mistaken for the lower part of the whole organ. This proved to be a portion of the anterior part of the cardiac end. I accepted the inevitable at once, continued my dissections, removed all the large mass and quickly ligating bleeding points made an effort to form a pretense of a stomach of the small piece remaining of cardiac end, esophagus and gut, and closed the wounds. The patient lived about thirty-six hours, complaining of both hunger and thirst. He was given morphia hypodermically in sufficient quantity to keep him easy until his death.

All but a small portion of the stomach was involved as was also the mesentery throughout the whole abdomen. A large mass of disease was left high up and involving the esophagus. The omentum was not invaded.

From the manner in which this patient stood the shock of the manipulation I had no doubt at the time and have none now but that had there been sufficient healthy tissue at the esophagus to have allowed of a successful attachment of the gut to that canal the result would have been different. The whole posterior and lateral walls of the stomach up to, and extending some distance up the esophagus were involved. There was about two or three inches of the anterior stomach wall at the end of the esophagus comparatively healthy, but the conditions were such as to render my efforts to form a continuous canal futile.

GONORRHEA.

A Clinical Lecture to Members of the American Medical Association Delivered in the Medico-Chirurgical Hospital of Philadelphia.

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PHILADELPHIA, PA.

ACUTE GONORRHEA.

This young man has suffered from acute gonorrhea for six days. It is his first attack. The period of inoculation was three days. There is an abundant discharge and intense pain on micturition. The prepuce and scrotum are greatly swollen.

A second man presents analogous symptoms and history. Four days after exposure he was attacked by sharp, stinging pain upon passing urine. A discharge, thin at first but which rapidly became thick and copious, soon developed. The disease has now been fully established for five days. There is some tenderness in both testicles and he has been troubled by chordee.

There need seldom be any difficulty in the diagnosis of gonorrhea. The muco-purulent discharge excited by the presence of a urethral chancre is sometimes sufficiently abundant to simulate gonorrhea. A chancre in that situation, however, can be readily recognized by the induration which it produces. The purulent flow in pyelitis may be so constant and profuse as to resemble a gonorrheal discharge. In pyelitis we have a history of pain in the back, febrile movement, vomiting and attacks of nephritic colic. The escape of pus in pyelitis is unaccompanied by urethral pain.

Gonorrhea is an exceedingly common disease and all are familiar with its ordinary manifestations, complications and consequences. Its rapid extension along the urethra, the inflammatory engorgement and edema, the chordee, phimosis, paraphimosis, balano-posthitis, epididymitis and arthritis by which it may be accompanied, are features presented to our notice every day. There are certain less frequent phenomena which we should bear in mind as regards this disease.

Gonorrhea attacks indifferently any mucous membrane with which its virus comes in contact. We must not allow ourselves to be deceived by the unusual characters of some cases which we are called upon to treat. The victims of gonorrhea, acquired in the usual way, are generally frank to the extreme in their confessions. It is otherwise, however, with those who have participated in unnatural practices. In such cases we are ordinarily compelled to rely upon our own sagacity. If a suppuration of a mucous membrane is abrupt in its onset, virulent in its nature and destructive in its effects, we would be warranted in at least suspecting the influence of gonorrhea. Light may be thrown upon the case also by the occupation and habits of the patient. Gonorrhea of the rectum may occur either from the abundance of the discharge and the transmission of, particularly, a vaginal infection to the anus and rectum or it may result from sodomy or pederasty. The ophthalmia excited by contact with gonorrheal virus in the child during birth or in the adult from gross carelessness, is a not infrequent incident. Gonorrhea of the nose may arise from similar circumstances. Edwards observed a case of a widow 60 years of age, who was affected by blowing her nose in the suspensory of her son who was suffering from gonorrhea. Other cases of nasal infection have been reported. In acute cases the nose becomes enormously swollen and the skin red, shining and painful. The face and upper lip are likewise tumefied. There is an abundant discharge, which causes ulceration of the lip. Ziem and Cozzolino are disposed to admit that the purulent rhinitis of the new-born may, like the purulent ophthalmia, be a manifestation of gonorrheal infection acquired during birth. Gonorrheal infection is sometimes encountered in adults as a result of unnatural vice.

During the second stage, inflammation sometimes spreads from the posterior urethra to the follicular structure of the prostate gland, causing a painful enlargement and obstruction to the outflow of urine. This acute prostatitis usually terminates in resolution, though suppuration may occur. At the same time the neck or fundus of the bladder may become involved. In other cases the disease extends to one or both of Cowper's glands, giving rise to much throbbing pain. The deferentia and vesiculæ seminales may likewise be attacked. The former is recognized as a hard, thickened, painful cord, occupying the position of the inguinal canal. The seminal vesicle is swollen and painful.

Since the demonstration of the gonococcus as the active cause of gonorrhea our knowledge has become more exact as regards the constitutional complications which sometimes take place. A formidable list of such occurrences has gradually accumulated. Prior to the discovery of the microbe the septic origin of "gonorrheal rheumatism" had been suspected. This not unusual complication is now brought into more intelligible relation to the primary disease. Suppurative arthritis is occasionally observed in consequence of gonorrhea. In connection with this subject it is of interest to note the study by M. Achard of gonorrheal arthritis by means of the Röentgen rays. In a patient who had had several attacks of gonorrhea, each being complicated by articular trouble, considerable deformity of the bones of the toes was found. The periosteum and bone were both affected, and in one spot an osteophyte was observed. Inflammation of the crico-arytenoid articulation of the larynx has been seen as a result of gonorrhea.

Of late years quite a number of cases of endocarditis due to gonorrhea have been reported. Prof. Albert Abrams of San Francisco has related the history of a boy 17, who on the fourteenth day of a gonorrhea was attacked by cardiac manifestations. There was distressing tachycardia with a feeble systolic murmur over the aorta and an increase in the area of superficial cardiac dulness toward the right side. Two days later the patient died. The endocarditis had not been preceded by gonorrheal rheumatism; the previous history of the lad was one of perfect health and absolute integrity of the heart. Dr. Siegheim has recently reported a fatal case of ulcerative gonorrheal endocarditis. Arthur Loxton has placed upon record a case of death, apparently due to acute septicemia in a patient afflicted with gonorrhea, the fatal issue taking place about a month after the venereal disorder had been contracted. Another fatal case was observed by M. Combemale. After gonorrhea had lasted for two months infectious rheumatism of several joints supervened. A few days later nephritis developed and the generalized infection was suddenly terminated by purulent bronchitis and parotiditis.

Pleurisy has been witnessed during the course of gonorrhea. This complication is usually mild, of short duration and may either be dry or attended by effusion.

Myelitis, paraplegia and muscular atrophy have been reported as consequences of acute gonorrhea. Professor Pitres has published an account of a patient suffering from acute gonorrhea who had painful swelling of some joints on the day after admittance to the hospital, and who later in the same day was attacked by right-sided hemiplegia and coma. Six weeks later he was seized with Jacksonian convulsions, in which he died. A very extensive softening was found in the region of the Sylvian artery but no atheroma could be discovered.

In the female, gonorrhea lays the foundation of a series of the gravest ailments of the womb, tubes and ovaries. We should therefore be deeply impressed by the fact that in neither sex is gonorrhea a disease to be lightly esteemed. We have learned that in its immediate and ulterior consequences it is a most prolific source of physical suffering and mental unhappiness.

Returning to the patients, victims of ordinary, every-day clap free from complications, we should wish to direct their treatment in such a manner as to safeguard them as far as we may against the development of possible complications and sequelæ. The more successful our management now the better the outlook for our patients' future. Since the discovery of the gonococcus, the renewed study of the natural history of gonorrhea as an infection and the general adoption of antiseptic methods, we are prompted to ask ourselves whether any improvements upon the older modes of treatment have been devised.

The chief aim of treatment is to destroy or paralyze the bacteria, or at least counteract their virulent products. The time honored blenorrhetics and injections possess a certain degree of germicidal and antiseptic power. Have we gained any new remedies or learned any new procedures by which we shall be able to hasten and perfect a cure? Gonorrhea has been acknowledged a difficult disease to cure permanently, as for a considerable period after all discharge has been suppressed a relapse may occur upon slight provocation.

One drug brought into use in recent years has proved a meritorous addition to our armamentarium, viz., salol. A combination of salicylic and carbolic acid, salol must evidently possess valuable antiseptic properties. In its escape from the system it exerts a beneficial effect upon the urethral mucous membrane. A second drug which acts in a similar manner in these cases is terebene, a derivative of turpentine. I am much in the habit also of prescribing in acute gonorrhea small doses of belladonna, which has a good influence upon the urethral glands.

For the first patient I shall order terebene, to be given in 0.31 c.c. increasing to 0.62 c.c. doses four times a day. On account of the edema he shall also have 0.06 increasing to 0.12 c.c. every two hours, of tincture of aconite. The second patient shall take 0.32 gram of salol, combined with 0.12 c.c. of the tincture of belladonna and 0.31 to 0.62 c.c. oil of sandalwood four times a day. For the erections I shall order a suppository containing 0.016 gram extract of belladonna with 0.32 gram of monobromated camphor. As regards local treatment I shall adopt what is known as Janet's method. This consists in the copious irrigation of the urethra and bladder with a 1 to 1000 or 1 to 2000 solution of potassium permanganate, a quart or more of the fluid being passed in at each sitting and the operation practiced every day for ten days or two weeks. The solution is made to flow by gravity from a large receptacle through a rubber tube connecting with an ordinary urethral syringe. This procedure is much more efficient in removing inflammatory products from the urethral crypts than the old practice of small and repeated injections made by the patient or even by the physician.

In association with the medical treatment I lay great stress on repose of body and mind, abstinence from liquors, highly seasoned foods, etc.

CHRONIC GONORRHEA.

I have likewise present three patients in whom gonorrhea has become chronic. The first man is 28 years of age. He contracted the disease ten months ago, submitted to treatment for about a month and was nearly free from discharge. Becoming impatient of the restrictions imposed upon him he then "threw physic to the dogs" and abandoned himself to a careless life. Since that time he has almost continually been afflicted by some degree of urethral leakage. At times it would almost disappear; then some imprudence in eating or drinking, exposure to cold or venereal excitement would cause a return of the flow. He comes here today in one of these periods of recrudescence. The discharge is moderately abundant and distinctly purulent. There is some pain on passing urine. During his intervals of comparative freedom he sometimes sees no discharge for several days; then he will perceive a few drops of thick pus escape from the meatus in the morning, or he can express it from the urethra when some hours have passed since the act of micturition.

A second man, 27 years of age, had a first attack of gonorrhea five years ago, and eighteen months ago he contracted a fresh case. The latter was undoubtedly due to re-infection, as it began four days after impure connection, was accompanied by a free discharge, pain in the urethra, swelling of the penis and complicated by epididymitis. Six weeks ago the man again cohabited for the first time since his second attack, and for two weeks indulged freely in intercourse. The result was a return of discharge, which is now rather abundant.

A third patient is 40 years of age. Eight months ago he contracted gonorrhea for the third time. He appeared to recover entirely and was untroubled until a few days ago when a dietetic excess brought back a scanty discharge.

These cases illustrate the difficulty of obtaining a radical cure of gonorrhea, the persistence of a slight discharge and the readiness with which an exacerbation is excited. From the medical point of view there are two features of special interest connected with chronic gonorrhea. One is the danger of communicating the disease, the second is the tendency to the formation of stricture.

We understand the subject of the transmissibility of gonorrhea better now than we did a few years ago. The study of gonococcus has cleared our conceptions. What formerly could be only a suspicion or belief founded upon clinical evidence can now be made an objective demonstration. From bacteriologic study we now know that the microbes long survive in the urethral crypts and cells, that however attenuated they may become they remain susceptible, under favorable circumstances, of reviving into activity. Deposited upon the mucous membrane of the female genital tract they are capable of exciting a gonorrheal catarrh which, though often more insidious than an acute attack, is followed by a more permanent and injurious effect.

It is scarcely possible, under the older and ordinary methods, to wash out thoroughly all the folds of the male urethral mucous membrane and to dislodge effectually the bacteria and inflammatory products. Consequently at one or more points along the canal inflammation lingers and bacteria survive. These spots are, on the one hand, starting points for exacerbations and relapses and, on the other, they are the first steps in the process of formation of strictures. These spots or patches are somewhat rough and often more or less completely denuded of epithelium and hence the name, "granular patches," by which they are known. The urethra at these places is morbidly sensitive, as is proved by the passage of a soft bougie. The low grade inflammation causes proliferation of the subjacent fibrous tissue. With the progress of time this tissue fulfills its law of contraction and the result is a gradual but progressive narrowing of the lumen of the urethra and a corresponding impediment to the exit of urine. Urethral stricture has a literature and surgery of its own and I have no time for comment upon such a broad subject. The prime consideration is that by well directed efforts in the acute stage and by local applications to the granular patches we may minimize the production of strictures.

I find upon examination that each of these three men has at least one granular patch upon the wall of the urethra. The second patient has two such lesions. The first patient is suffering now from what is almost equivalent to an acute clap. In his case I will have carried out a treatment applicable to the acute disorder until the manifestations have subsided, when I shall have recourse to direct medication of the patches in the same manner as in the other two cases. This method employs a syringe which holds 0.92 or 1.23 c.c., attached to a flexible catheter, which terminates in a bulbous nozzle. The solution to be used is placed within the syringe, the granular patch is located by means of the *bougie à boule* and the medicated fluid can then be deposited exactly upon the surface of the lesion. Before performing this operation the bladder of the patient should be evacuated. An application of this kind is made two or three times a week. This is a procedure to which I often resort with very satisfactory results. Various substances may be used. I often apply in this manner a solution of silver nitrate, beginning with a strength of 0.32 to 0.65 gram to 29.5 c.c. water and gradually increasing according as it is tolerated. Copper sulphate also makes an excellent application and this is the remedy which I shall use today, taking first a 5 per cent. solution and increasing the proportion to 10 per cent.

LECTURES ON TUBERCULOSIS OF THE KIDNEY.

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LECTURE I.

Tuberculosis of the kidney occurs in two forms, viz., miliary granulations and tuberculous infiltration of the kidney. The first form is a medical tuberculosis, while the second is more or less surgical.

Durand-Fardel has described a special form of renal tuberculosis. He saw a case in which he found great quantities of bacilli but which had not produced any pathologic change in the kidney; the glomeruli contained Koch's bacillus in their capillary loops, but the organism had not had sufficient time to produce irritative lesions, for all the renal tissue was found normal, even the structure of the glomeruli was healthy. Some vessels which were packed with bacilli to such an extent that under a lower power their cavity appeared like a red speck, were also normal and no trace of cell proliferation could be detected around them. Daunic has reported a similar case. Death occurred with great rapidity and at the autopsy large quantities of bacilli were found in all the organs, especially in the kidneys.

Miliary granulations are frequently found in the kidney. Tuffier thinks that they are an epi-phenomena of a general infection. According to Rayer they are found in the cortex, sometimes in the medullary substance. When in the cortex, they are disseminated or form whitish-gray tracts running from the periphery toward the center and following the direction of the renal vessels. Lecorché gives the same description. The granulations are localized in the neighborhood of the arteries which separate the pyramids of Farrein. Following the arteries longitudinal series or groups of tuberculous granulations are to be seen.

Topographically, the granulations predominate in the cortex, because the blood current is slow in the glomeruli and in the intertubal spaces, and for this reason the bacilli find much difficulty in their progress forward without joining colonies in a region very favorable for their development.

Miliary granulations vary in diameter from 1 to 2 mm. Usually they are isolated, of a white or yellow color, easily dissociated and form on a cover glass small granular bodies. When in the state of small tubercles they sometimes present the aspect of a small, irregular whitish plaque. With the naked eye the surrounding parenchyma appears normal or as if a slight hyperemia were present. Microscopically, tuberculous follicles and elementary nodules with giant cells are found. The bacillus is always to be found, sometimes in great number. They are seen in groups in the interior of and around the epithelial cells. Often, however, the bacilli are few in number, one or two being found in each giant cell.

If you examine a preparation you will remark that, all about, the renal parenchyma has undergone a marked denutrition, the tubes have desquamated and their flattened epithelium shows that they are inactive. Others only show a decrease in the diameter of their canal, with sclerosis of their walls; some are even completely retracted and only contain the remains of their epithelium in the form of granular fatty débris. The glomeruli look like rosy spots and too small for their enveloping capsule. They are inactive and are only simple fibrous cicatrices. A tubercle can become fibrous in the kidney as in any other organ and is then composed of connective tissue elements in a state of hyperplasia. From the tubercle start off fine fibrous bands which extend into the surrounding parenchyma, thus binding it intimately with the tubercle.

In the case of large miliary granulations, the neighboring renal tissue is far more diseased and several granulations may be distinctly seen in one tubercle. Between the tubercles connective tissue bands alternating with embryonal cells are found while the kidney tissue has completely disappeared. The majority of these granulations are caseous. In their center a nearly homogeneous tissue made up of degenerated cells is found. These granulations are usually grouped around an artery.

This miliary tuberculosis appears during the progress of an acute infection with fever, as is so often seen in children. Usually it coincides with a tuberculosis of both kidneys and the spleen. Nevertheless, these tubercles are found in the adult during a pulmonary tuberculosis, but incidentaly only, so that clinically they can hardly be taken into consideration.

To sum up it may be said that there is no constant localization for tuberculous granulations. They occupy indifferently the peri-vascular tissue, the track of a vessel, a glomerulus or a space corresponding to several renal tubes. The tuberculous tissue has the same characters in the kidneys as in any other organ. Caseification and the vitreous aspect occur early and the giant cells appear soon after. When the granulations develop in large numbers in a localized spot or in the entire kidney they rapidly run together, undergo caseous degeneration, and thus give rise to more or less extensive destruction of the renal tissues.

This leads me to the study of tuberculous cavities and infiltrating tuberculosis.

Since the writings of Bayle, Roger, Lecorché, Guyon, Reclus, Tuffier, Newman and many others, we know the surprising shape, size, etc., that a tuberculous kidney may present. We will divide this form of tuberculosis into the four following varieties, viz.: 1, nodular infiltration; 2, tuberculous pyelo-nephritis; 3, massive degeneration of the kidney; 4, tuberculous hydronephrosis.

Nodular infiltration is characterized by round masses of a yellowish-gray color, sometimes projecting above the surface of the organ. The kidney is not entirely invaded, only part of its parenchyma being the seat of disease. Sometimes the disease is seen in the form of a small tumor on the surface of the kidney, whitish-yellow in color and firm in consistency, but when caseification is about to occur it is soft to the touch. At other times the disease occurs as a large mass, deeply seated in the renal tissues, while at the surface of the organ it projects, its surface being more or less irregular. Occasionally a series of smaller confluent nodules are found, hard and white in formation, those undergoing degeneration melt in a granular mass contained in the excavations hollowed out in the parenchyma of the kidney. The nodules are consequently multiple, some being hard, some caseous.

Tuberculous pyelo-nephritis is rather more of an accident due to a peculiarity in evolution than a special form of the disease. These foci of nodular infiltration soften and break down and empty into the pelvis of the kidney. This is consequenty a modification of the nodular variety, or as I might express it, the ultimate stage of nodular infiltration.

It is in these cases that the kidney is destroyed by the irregular cavities with indurated and ragged borders. From these cavities certain products are expelled which give rise to the formation of an enormous amount of pus. The kidney is filled with cavities increased in size and misshapen. It has a whitish, lardaceous aspect and when cut open exposes the numerous cavities which open into each other or communicate with the calices and pelvis of the kidney. The capsule of the organ is very adherent over these cavities and is adherent to the peritoneum and quadratus lumborum as well.

Microscopically, three zones may be distinguished: 1, an internal zone made up of the débris of caseous elements; 2, a middle zone of tuberculous infiltration having a tendency toward sclerosis; 3, an external zone composed of embryonal tissue. If you remove the caseous matter which is often very adherent to the walls of the cavities, you will remark that the walls are smooth, resistant and form true pyogenic membranes, surrounded by a fibrous tissue. The caseous matter does not contain the bacillus and is simply made up of degenerate cells.

The walls of the cavities are formed by a network of connective tissue, which varies greatly in different parts. In some places the connective tissue fibers are close together, while at others a simple mass of embryonal cells is all that can be discovered. It is a pyogenic membrane because it has embryonal cells, giant cells and numerous vessels of new formation.

These foreign and at the same time destructive elements finally reach the neighboring renal tissue, pressing upon the tubes, invading them by means of the agglomeration of embryonal cells and newly formed vessels, which are more highly organized than in the walls of the cavity but whose fragile tissues easily break down. Other parts of the renal tissue may undergo fatty degeneration of the epithelium as well as amyloid degeneration of the glomeruli.

Massive degeneration of the kidney.—In this case, the renal tissues no longer exist; they are only represented by a thin and transparent membrane which contains a solid thick mass, very similar to putty or to the contents of a dermoid cyst.

This enveloping membrane sends off branches which incompletely divide the tuberculous mass. The caseous matter is sometimes very considerable in amount and may reach such dimensions as to obliterate the ureter. The exit of pus, urine and caseous débris being no longer possible they accumulate and distend the kidney to an extreme degree.

Tuberculous hydronephrosis is the result of this compression of the ureter, and in no way differs from the aseptic dilatation of the kidney. A membrane, sending off incomplete divisions, the contents of which are a yellow transparent liquid, is all that is found. The bacillus of tuberculosis is found in this fluid when inoculated into animals.

The kidney tissue is not so diseased as in the preceding varieties, it being especially distended by obliteration of the ureteral orifice. The ureter is increased in size, its walls thickened and indurated, while its lumen is either filiform or absent.

The process of cure may stop the progress of the lesions and if it declares itself in its various ways a true calcification is seen to take place. The caseous mass becomes thicker and is transformed finally into calcareous masses.

The lesions in the neighboring tissues are perirenal tuberculous abscesses. As a primary lesion they are infrequent but secondarily they often follow a tuberculosis of the kidney. Adhesions may form between the kidney and the intestines, vena cava and other viscera.

The ureter is not always attacked but usually it is somewhat infiltrated or thickened, while the mucous membrane is exfoliated and the lumen of the canal choked with débris.

Such are the principal forms of tuberculosis of the kidney. It may occur in the form of small single, grayish, semi-transparent granulations, forming a confluent or discrete eruption in the entire organ. At other times it forms larger masses, a kind of small caseous tumor whose aspect and consistency varies according to the age of the lesion.

In the acute form, the granulations do not evolute on account of the rapid progress of the disease. In the chronic form, the disease forms large masses which may undergo caseous softening and then form real tumors of various sizes, or it may produce multiple cavities which burrow to such an extent as to render the walls transparent and transforming the kidney into a vast focus of disease.

The capsule often becomes infiltrated and the calices, pelvis and ureter are invaded by the neoplasm. They become thickened in their turn, and finally ulcerated; then they are distended and dilated by the urine which is prevented from flowing through them.

I now call your attention to experimental tuberculosis. In infectious diseases renal lesions are often found, due sometimes to bacteria, at others to the toxins that they secrete. When bacteria become localized in certain tissues they secrete poisons or toxins which, when absorbed and spread throughout the economy by the lymphatics and blood, produce changes in other parts.

As I have already pointed out, the bacillus of tuberculosis may become localized and produce lesions in the kidney. Its toxins also cause lesions of the renal epithelium, and it is this particular point on which I wish to insist. We know the lesions due to the proliferation of this bacillus in the parenchyma of the kidney in man and this knowledge must be completed by experiments on animals.

Experimental tuberculosis of the kidney is realized as follows: *By intravenous injections*, which is not, however, a sure way of producing infection, but if it is secured it is only secondary. The granulations are not primary and demonstrate a recent dissemination of the bacillus; consequently the lungs, which act as a filter, should be avoided.

Direct inoculation of the kidney through the lumbar region has been practiced by Kostenich and Volkow, but as Borel remarks, this method has many defects. In the first place, it differs from the natural ways and it adds to the tuberculous process an intense process of repair which complicates the experiment.

Arterial injections in the carotid and aorta have been performed by Borel.

The question now comes, do the experimental facts confirm the theories established, on the pathologic anatomy of tuberculosis of the kidney? According to Virchow, the renal tubercle is made up of a lymphoid proliferation of connective tissue. The cellular elements of the gland only undergo a simple atrophy or a necrosis, but it is always the connective tissue which forms the soil in which the tubercles develop.

Baumgarten was the first to produce tuberculosis of the kidney experimentally. He injected the bacillus in the veins and studied the renal lesions which were secondary to the pulmonary tuberculosis thus produced. The first phenomenon which provokes the presence of Koch's bacillus is a karyokinesis of the fixed epithelial cells of the uriniferous tubes, of the endothelium of the capillaries and the elements of the wall of the glomeruli.

Later on, epithelioid cells are produced, and with such great rapidity in the uriniferous canals that they become completely obstructed. According to Baumgarten the proliferation of the fixed cells is the principal process of tuberculosis.

Kostenich and Volkow confirmed Baumgarten's results. They directly pricked the kidneys and three hours later found an intense polynuclear leucocythemia. Sometimes the bacilli appeared to be enclosed in the leucocytes, at others they appeared to be on the outside.

After twenty-four hours there was an intense karyokinesis in the cells of the canaliculi, while between them there appeared pale nuclei of various shapes which later resembled renal epithelial cells as well as epithelioid cells. According to these writers the latter were derived from the intercanalicular cells.

Borel obtained different results, for he never found the bacilli in the glandular tubes. From the very first, the bacilli were seized by the polynuclear leucocytes which accumulated in the dilated loops of the glomerular capillaries. Among these leucocytes irregular oval nuclei, surrounded by a granular protoplasm containing the bacilli, appeared on the third day. The nuclei and protoplasma belonged to monocellular elements. The same phenomena occurred in the intercellular tissue; these elements were distinctly different from connective tissue or endothelial cells.

The cells of the tubercle are stationary, movable elements and do not appear to result from a proliferation of pre-existing fixed, connective or endothelial cells. According to Borel, the tuberculous granulation is essentially interstitial and of lymphatic origin.

The epithelioid cells are the result of a natural evolution and development of the lymphatic cells localized in a given region of the economy. The tubercle is an accumulation of lymphatic cells.

The epithelium of the kidney plays no active part; it is only irritated by the process of atrophy or necrosis going on in the neighboring tissues. According to Baumgarten on the contrary, the karyokinesis of the fixed cells and renal epithelium is the predominating tuberculous process, while Borel claims the tuberculous granulation is a lymphatic formation, identical in all organs, which confirms Metchnikoff's theory.

The results of experiments differ consequently as to the intimate development. to the histogenesis of the primary elements, but they complete the histologic and pathologic facts that I gave in the beginning of this lecture.

They demonstrate that there is only one primary tuberculosis with a predominating glomerular or cortical localization; that there is only one granular tuberculosis scattered throughout the entire organ with a predominating perivascular localization. In both these cases the processus is always interstitial and the only active elements of the tubercle are the lymphatic tissues. The various elements of the kidney, particularly the renal epithelium, in no way enter into the formation of the tubercle.

Toxins of tuberculosis.—The study of the toxins of tuberculosis leads me to say a few words regarding tuberculous nephritis as well as amyloid degeneration of the kidney.

Bouchard, in 1881, was the first to draw attention to the infectious nephrites that accompany diphtheria, typhoid fever and tuberculosis. Later on Strauss, Cohnheim and Gaucher described the lesions found in the kidney, produced by these toxins. In 1886, Durand-Fardel demonstrated the presence of the bacillus of tuberculosis in the kidney and Coffin described tuberculous nephritis which, according to this writer, presented the characters of an infectious nephritis besides the direct tuberculous lesions.

There are other nephrites which are apparently not tuberculous, in this sense, that the simple tuberculous nodules or masses of caseous material are absent. Now, these nephrites produced by the presence of a tuberculosis are produced by the irritation caused by the elimination of tuberculous toxins. Bartels seems to have foreseen what experimental pathology has demonstrated, and Grancher and Martin when trying to obtain an antituberculous vaccination with old cultures, observed death from nephritis eight times, and they admit that the attenuated tuberculous virus contains a toxin which causes nephritis and paraplegia. Koch's tuberculin has caused nephritis many times.

Tuberculous nephritis. — The kidney presents marked changes in size, color and weight. Rayer described parenchymatous nephritis or the so-called "large white kidney." Siedalln believes that this form of renal disease frequently occurs in tuberculosis.

According to Lancereaux, the contracted kidney of interstitial nephritis is more frequently seen in this disease. Of 281 tuberculous nephrites, Bamberger found the large white kidney 157 times, 47 times an acute nephritis and 77 times the atrophic variety.

Generally the kidney is larger than normal and appears distended from the congestion of which it is the seat. The capsule is soft and is easily decorticated. The kidney is a dark bluish red, its surface being smooth and shiny.

Macroscopically the cortical substance is bluish in color as if it were undergoing fatty degeneration. The pyramids are distinctly seen, while the glomeruli are red and projecting. Microscopically two kinds of lesions are found. The first is a change in the epithelium which is only slight and during life does not produce albuminuria. In the second form albumin has been found in the urine during life and the lesions are far more extensive. Both forms are simply stages of the same processus.

Slight nephritis without albuminuria.—The glomeruli are only slightly diseased; the cells of Bowman's capsule are in proliferation. The endothelium of the vessels of the glomeruli are degenerated with minute drops of fat. Globules are present between the vesicular loops and the cavity of the capsule. In the tubuli contorti the cells are large, cloudy and swollen, while the epithelium is filled with drops of fat. The intertubular connective tissue undergoes a marked hypertrophy in tuberculous patients presenting an arterio-sclerosis.

Severe nephritis with albuminuria.—The microscopic lesions are similar to the preceding nephritis, only they are very much more marked. Degeneration of the collecting tubes is always present, while the caliber of the tubuli contorti is great, the latter are distended and tumefied, their epithelium is swollen and granular while in some parts it has secreted colloid masses which block up the lumen of the tube. Sometimes the epithelium undergoes cloudy swelling and secretes hyaline masses; the former is flattened, only forming a simple layer of cells with granular protoplasma. In the interior of the tubes are yellowish masses, sometimes having the epithelial cells detached; these are the casts.

The endothelial cells of the capsule are in active proliferation, filling the cavity with débris, while the glomeruli are in a stage of congestion, sometimes amyloid.

The description that I have given leads us to suppose that there really exists a tubercular nephritis and that it begins with the tuberculosis. This nephritis is frequent in the rabbit after vaccination with tuberculosis and has been observed by Grancher and Martin. Daunic also has seen them in his experiments.

Thus these lesions are probably due to the toxins of tuberculosis. Their frequency, their characteristic aspect, both of which are always present, is in favor of this opinion. The toxicity of the products of tuberculosis is complex, but from what I have said we may conclude that these nephrites are not always due to the presence of the bacilli in the kidney but are often due to irritation set up by the elimination of their toxins.

Amyloid degeneration.—Many diseases may give rise to this lesion and it has nothing specific about it. There is however an amyloid degeneration following tuberculosis and which has as pathognomonic cause a tuberculous infection. The kidneys present a special anatomo-pathologic aspect.

The glomeruli are semi-transparent and have a shiny waxy aspect which is characteristic. Iodin colors the glomeruli dark brown, while sulphuric acid gives them a dark violet hue.

In the beginning the lesion is almost entirely localized in the capillaries of the glomeruli, the former being thickened, but later the glomeruli are in totality invaded, the lesion then being seated in the walls of the arteries. It is consequently by the vessels that the amyloid infiltration is set up. Weigert, Lecorché and others, think that the coincidence of amyloid degeneration and large white kidney (chronic diffuse subacute nephritis) is generally the rule, and that the amyloid infiltration is always an accessory lesion put into action by a former nephritis.

Although a vast amount has been written regarding this form of degeneration, we are as yet not quite sure to what factor it should be attributed. It was thought that a particular substance formed in abscesses, ulcers, tuberculous cavities, etc., resulting from the oxidizing action of the air on pus. This substance was considered a chemic poison produced by the influence of fermentation and was easily produced experimentally in animals by inoculating other toxins than those found in tuberculosis.

Thus it was that Charrin and Bouchard, by intoxicating an animal with blue pus and filtered cultures of the pyocyanic bacillus, produced amyloid degeneration in the breast and kidneys. The same results were obtained with tuberculosis.

We can thus suppose there is not direct action of the bacteria on the walls of the vessels. Perhaps amyloid degeneration is due to the toxins of tuberculosis in the pus, and the tubercles in different organs are surrounded by a thick layer of connective tissue which always undergoes amyloid degeneration.

I now come to the etiology and pathogenesis of tuberculosis of the kidney, which disease occurs at all ages but is more common in children and old people. Women are more prone to this disease than men. Of forty-three cases seen by Tuffier, twenty-nine were women and fourteen males. Vigneron published statistics of 133 operations for this renal complication, ninety-seven were performed on women and only thirty-six on men.

According to Roberts, the disease is more frequent between the ages of 30 and 40 years, while for Rosenstein it is more common between 15 and 30. Personally, I think that it occurs more frequently between 20 and 35, but Tapret reports a case of the affection in a man aged 97 and Glück removed a tuberculous kidney from a child of 3½ years.

The kidney is very rarely attacked by tuberculosis and Louis only found 5 cases out of 170 autopsies. Of 1317 patients dying from tuberculosis at the hospital at Prague there were 75 tuberculous kidneys. In children, according to Rilliet and Barthez, out of seventy-two autopsies, forty-nine cases of renal tuberlosis were found.

Generally speaking, renal tuberculosis is under the dependence of many influences produced by the general infection, and here as in other affections, we must take into consideration denutrition, contagion, heredity, etc.

The kidney like the lung is under the control of these various etiologic factors, which if they do not directly produce the lesion, admirably prepare the organ for the disease.

The starting point of tuberculosis of the urinary system has been the subject of much discussion. The pathologic anatomy that I have given, demonstrates that the infectious process is produced by Koch's bacillus. Now, the question is: Does the affection begin in the prostate and seminal vesicles, the bacilli attacking the kidney and bladder afterward; or is the bladder the first to be diseased, or is it the kidney?

Each organ of the genito-urinary system has in turn been supposed to be the primary seat of the infection and all ways of propagation have been admitted as possible. There are two principal theories, however: the first is that the tubercle forms in the testicle and epididymis, from whence it invades the other organs; while the second is that the infection begins in the kidney and from there attacks the other parts of the excretory system. Both are upheld, but if you closely observe the cases reported it will appear clearly that the disease commences in the kidney, and from this organ it penetrates the urinary tract, invading successively the ureters, bladder, the posterior urethra, the prostate, seminal vesicles, the vas deferens, epididymis and testicle.

If you find at an autopsy a renal tuberculosis of recent date, by that I mean miliary granulations, one is extremely sure to find the lesion farther down in the urinary system. Lecorché and Roger have especially found lesions entirely limited in the kidney; the secondary tubercles were only in the kidney, rarely did they find them in the pelvis or calices and still more infrequently in the ureters and bladder.

Le Dentu says that tuberculosis localized in the kidney is very infrequent, at least it is rarely reported. Now this local tuberculosis, which is a mortal danger, becomes generalized because from the kidney the bacilli infect the economy, causing a general infection. For a while this lesion, which is only in the kidney, remains local, but soon it invades the system and for this reason a renal tuberculosis is rarely met with at the autopsy. Consequently, Le Dentu admits that localized renal tuberculosis is theoretically explained.

This being admitted, we know that Cayla claims that genito-urinary tuberculosis follows the urinary tract downward; starting from the kidney it first invades the urinary, then the genital system.

Now contrary to Cayla, most writers believe in an ascending infection and it would appear that clinical facts of tuberculous infection, contracted during coitus, would plead in favor of this hypothesis. And do we not see and follow for many years patients with a tubercular prostate or testicle, who never have symptoms of a renal infection?

According to Hallé, the disease begins sometimes in the lower genital or urinary organs, the prostate or posterior urethra, afterward invading the bladder and kidneys, thus appearing to be an ascending infection of external origin. But this ascending infection is far from being in accord with the histories of most of the cases reported.

Oftener it is the bladder or the kidneys which are the primary seat of the affection, and other localizations of the disease are only secondary symptoms of a general tuberculous infection.

Daunic does not admit that the bacillus can penetrate into the kidney from coitus, and gives the following reasons, based on the practice of a number of eminent surgeons: Tuberculosis of the uterus is very rare, consequently the male can only be contaminated infrequently. Hillairet and Looten both report a case of tuberculosis of the glans penis, but in both cases the diagnosis was not absolute. Never before has a case of inoculated tuberculosis been reported on the penis, glans or anterior part of the urethra.

The seat of tuberculous lesions in the female genital organs does not seem to be that of one resulting from coitus; if this were the case, the tubercles would first occur in the vagina and cervix, which in reality is very rare. The bacilli are, consequently, brought by the blood, as is proved by pathologic anatomy when it shows that the bacilli are more often found in the glomeruli, arteries of the kidney and in their walls, and also that the tuberculous granulations are either in the interior or neighborhood of the vessels. Consequently, according to Daunic, a renal, secondary to a genito-urinary tuberculosis, is as yet unexplained as regards its pathogenesis. The bacillus can penetrate the kidney by the blood and by the ureters from below upward, but what appears to be settled, is that the bacillus can not infect the kidney from coitus.

Besides a genito-urinary tuberculosis, there is another form which is diffuse, being pleural, pulmonary, genital, peritoneal, etc. In this case, we have what is termed "the medical tuberculous kidney." This term should not be employed in its exact meaning, for according to the indications, prognosis and progress of the lesions, a medical tuberculous kidney may become surgical.

In this case, in the pathologic point of view, the kidney may have had a primary focus of tuberculosis from which the bacilli penetrate the entire economy through the blood.

But the kidney may only be a secondary focus depending on lesions in the lungs, from which point the bacilli attain the kidney and become localized there, producing a lesion secondary to that in the lungs.

In the first case, we have a local primary tuberculosis of the kidney, producing a general infection; in the second, the primary lesion is in an organ other than the kidney and the latter is infected secondarily; consequently, tuberculosis of the kidney presents two different pathologic conditions, viz., primary and secondary infections.

As to its starting point the majority of reported cases seem to show that the seminal vesicles and prostate with secondary infection of the bladder and kidney is the more frequent manner of infection. Tuberculosis of the kidney *ab coitu* should be rejected as impossible, for the kidney only may be the primary seat of the process and this localized primary tuberculosis of the kidney can progressively infect the ureters and genito-urinary system.

Regarding the way in which the kidney is attacked by tuberculosis, Wesens believes that the bacilli are more frequently present in chronic tuberculosis than in the acute form. Now we know, according to Cornil, Baumgarten and others, that it is precisely in the miliary form, in acute attacks, that the specific organism of the affection is found. Baumgarten found the bacillus in the tubuli contorti and believes that they come from the neighboring capillaries. Durand-Fardel saw them in the glomeruli and interior of the renal vessels. Consequently the transportation of the bacilli is accomplished by the arterial circulation.

Probably the organism invades the glomeruli and also the various parts of the cortical substance. The tubercle extends in size from its periphery, and in this extension the cells of the tubuli contorti play the most important part. The bacillus imitates the cells; the nuclei of the epithelium presents karyokinetic forms; new cells form and accumulate, while the walls of the tubuli contorti give way to this pressure. The neighboring granulations melt together and soon after the epithelioid cells take on the aspect of embryonal elements.

Brault gives the following description: When a uriniferous tube is invaded by the bacilli the cells, after a short irritation, become swollen, caseous, and form a protoplasmic mass, in the center of which Koch's organism is sometimes found.

More often, however, fine granulations in which the lymphatic cells are predominant, fill the intertubular spaces and contain giant cells.

Large tubercles often succeed the elementary ones and it may be admitted that the former arise from microbio emboli. The distribution of these emboli is irregular, as they occur in any part of the kidney and genito-urinary system.

To sum up, we have a primary tuberculosis of the kidney in patients who have never presented any other symptom of bacillosis, the starting point being in the kidney or bladder. The infection occurs by the blood. From the cortex the processus invades the medullary substance, the pelvis of the kidney, ureter and bladder.

The secondary form occurs in subjects presenting tuberculous lesions in full evolution, the primary focus being in the lungs, joints, lymphatic glands, or one of the genital organs of man. The primary lesion is often in the bladder, the lesion of the kidney taking place by ascending infection. In some cases there may be a secondary renal tuberculosis, terminating with a secondary descending tuberculosis of the urinary organs.

(To be continued.)

DISEASES OF THE CONJUNCTIVA IN RELATION TO DISEASES OF THE NASAL PASSAGES.

Presented to the Section on Laryngology and Otology at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June, 1-4, 1897.

BY ROBERT N. KEELY, M.D.
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It is only recently that the relation of cause and effect which exists between nasal affections and those of the conjunctiva have begun to attract attention. That this relation does exist there can be no doubt, but it has not been properly appreciated.

The obstinate and unsatisfactory course which many cases of conjunctivitis pursue is well known; it usually means a long period of suffering and disability to the patient and a wearisome, unresponsive and unsatisfactory treatment on the part of the physician. The practical discovery of the dependence of conjunctival disease on that of the nasal cavities is due perhaps more to the nasal than to the ophthalmic surgeon. This was due not so much to the lack of ability on the part of the oculist as to the immense advances recently made in the domain of nasal surgery. Previous to these, although it was known that the nasal mucous membrane as well as the ocular was affected, still the means of treatment were practically restricted to the former. Until the last decade physicians, as a rule, had comparatively little knowledge as to the treatment of the nasal portion of the diseased tract. In fact so little was known that any existing departure of the nasal cavity from a state of health could not be recognized or diagnosticated. It was not known what constituted health and what disease. As, however, the nasal surgeons began to recognize and master nasal diseases it was found that in so doing they often encountered cases in which an accompanying ocular inflammation cleared up without any special treatment having been directed to it. This served to attract attention to the causal relation existing between the two affections; also the ophthalmic surgeon seeing the advances made by his nasal colleague, and his success in the treatment of the hitherto rebellious nasal troubles, sought his aid more frequently, particularly in affections of the lachrymal duct and sac where the connection of the two affections were most serious and most evident.

It had long been known that conjunctivitis was often dependent on diseases of the lachrymal duct and sac, and when these had been shown to be often dependent on trouble within the nose, it followed as a matter of course that conjunctivitis could likewise be due to extension of the inflammation from the nasal cavity.

The inquiry once having been raised, the advanced state of nasal surgery was able at once to solve the questions presented by the oculist. It was found that the nasal mucous membrane was a most sensitive structure and rapidily responded to and resented all forms of irritation. Inflammatory evidences in the conjunctiva were preceded by sneezing and swelling of the Schneiderian membrane in acute cases and the nasal symptoms preceded the ocular ones. In chronic cases it was found that the turbinated tissues were hypertrophied, that cartilaginous and bony spurs impeded the free passage of air; that deviations of the septum also acted as an obstruction, and tended to the accumulation of mucus and favored the establishment and aggravation of catarrhal troubles. The proof, however, of the causative action of nasal affections on ocular ones was the disappearance of the latter on the removal or cure of the former. The whole question is one of such recent date that notwithstanding its satisfactory solution, it has not received the attention of ophthalmic surgeons that it deserves.

In our text-books particularly, the references to nasal trouble as a causative factor in conjunctivitis is not sufficiently insisted on nor its action explained. Neither are sufficient details of treatment given to enable the practitioner to relieve those cases of conjunctivitis which can only be cured by properly remedying the coexisting nasal affection on which it depends. It is not to be expected of the oculist that he shall undertake the sole treatment of the nasal troubles, but he should have such a knowledge as will enable him to properly examine and recognize abnormal conditions, and even if circumstances require, to conduct the treatment of the milder forms. In many cases the treatment must be carried out in conjunction with a colleague skilled in nasal surgery, and this will often prove the most efficacious and derirable plan.

The following cases may serve to show the association of nasal and ocular troubles:

A man aged 36 years had a violent inflammation of the left eye associated with discharge from the nostril. The eye was swollen almost shut, and the examination showed the mucous surface of the lids covered with a layer of false membrane which was easily stripped off. The right eye was not affected. The patient had had a traumatic deviation of the nasal septum for which he had been operated on two years previously. While considerable breathing space had been obtained, an ulcerated surface had persisted ever since. He had suffered for three or four years from slight attacks of hay asthma. These followed the injury to the nose and existed previous to the operation. The discharge from the nostril was thick and tenacious and excoriated the lip.

A false membrane covered the entire nasal mucosa and extended down into the naso-pharynx. Dr. Kyle examined the membrane bacteriologically but failed to find any Klebs-Loeffler bacilli, only streptococci and staphylococci. It was supposed the disease was a streptococcus infection, and that the eye had become secondarily involved through the medium of the nasal duct. The nostril was carefully cleansed with an antiseptic saline solution, and the ulcerated surface touched with toluol and sesquichlorid of iron of six parts to a hundred of water. The eye was washed with a boric acid solution and the nostril thoroughly cleansed every two hours with biborate and bicarbonate of soda, carbolic acid and cinnamon water and glycerin and water. There was a slight re-formation of the membrane in the eye, but none in the nostril except about the points of ulceration of the septum. The condition cleared in forty-eight hours, a mild attack of hay asthma persisted, however, for several weeks.

Another case was that of a girl aged 16 years. She suffered from a flow of tears from the right eye. She took cold easily and then the right nostril would suddenly close and a flow from the eye would begin and continue until breathing was re-established. Examination of the nose showed enormous thickening of the mucous membrane of the middle turbinate. This swollen membrane occluded the nasal duct by pressure. The condition had existed for three or four years. The duct had been probed from above and several eye washes had been used. A portion of the middle turbinate was removed together with the thickened tissue, and although a year and a half has elapsed since the operation there has been no return of the former symptoms.

The last case is one of a child aged 3 years. Both eyes were affected; the lids were red and granular and discharging a fetid pus. There was also a purulent rhinitis. Under an anti-strumous treatment of syrupus ferri iodi and the hypophosphites with a 0.0027 gram of the double sulphid of arsenic and a local application of boric acid, the eyes cleared up promptly.

1823 Vine Street.

REPORT OF A CASE OF MALIGNANT GROWTH IN THE LARYNX; TOTAL EXTIRPATION, SOLIS-COHEN METHOD.

Presented to the Section on Laryngology and Otology at the Forty-Eighth Annual Meeting of the American Medical Association at Philadelphia, June 1-4, 1897.

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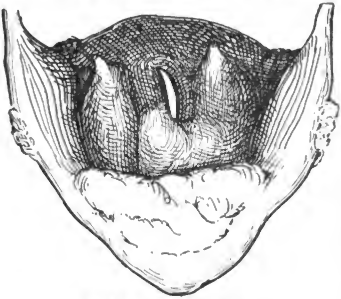
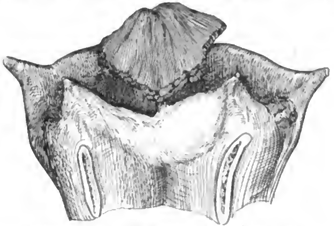
James Eckersley, age 49, machinist, worker in the emery room of a sewing machine factory, was sent to me Aug. 7, 1896, for diagnosis and opinion concerning the condition of his throat. He complained of loss of voice, sore throat, sore chest, cough, difficulty in breathing, poor appetite, weakness and night sweats. The cough had troubled him from time to time, for thirteen years. He was able to sing up to three months since; then he became hoarse, and has remained so up to date. I found a large growth in the larynx, which was attached to the right vocal chord and the adjacent anterior and inferior parts, and extended across the anterior commissure. The larynx was dilated to an extreme degree by the formation. There was a small opening in the respiratory space between the arytenoids, and there were two abrasions on the top of the tumor, apparently caused by forceps in an attempt to obtain specimens for microscopic examination. I reported that the characteristics were those of malignancy, and that I would advise the removal of a deep section of the growth for microscopic examination. This was accomplished with Krause's double curette, it being the opinion of the writer that Mackenzie's cutting and Schroetter's tube forceps are not reliable in making deep sections of laryngeal growths. I also advised that an immediate operation of total extirpation should be performed in the event that the diagnosis was corroborated and confirmed. Dr. Vissman made a microscopic examination and reported that the tumor was a carcinoma. I advocated the Solis-Cohen operation. This was performed by Dr. J. A. Bodine Aug. 17, 1896, preliminary tracheotomy having been performed several days previously. After the patient had been anesthetized an incision was made in the median line from the hyoid bone down to the tracheotomy wound; no cross incision was made. The parts were dissected on either side from the thyroid and cricoid cartilages. The bleeding was slight, and was stopped by compression or ligature; chloroform narcosis was continued through the tracheotomy tube. The trachea was cut through at the point of junction with the cricoid, and was pulled outward and downward, great care being taken to prevent the blood from entering through the severed end. Then the larynx was lifted upward and dissected from the esophagus, constrictor muscles, crico-arytenoidean folds and the epiglottis. The esophageal and epiglottic surfaces were brought together firmly with catgut. The external excision was closed with sutures down to the lower part. The end of the trachea was stitched to the skin above the supra-sternal notch and also on the sides. The patient was fed by mouth for a few days, when the catgut gave way and allowed the milk from the pharynx to enter the wound. He was fed by a tube through the mouth after this for a time. The patient improved gradually; but at times he had attacks of profound nervous depression, with expressions of great fear of suffocation, and an indisposition to take food. The trachea receded and dragged the skin inward and became quite narrow. This was kept open by different forms of tubes; the Simrock nasal speculum was the most feasible. The tracheal walls became dry and abraded, and the patient suffered much from mucous and bloody crusts. A spray of liquid albolene with carbolic acid and eucalyptol gave him great relief. The opening became so tight that it was necessary to excise a part of the tissue where the skin and trachea unite. The communication between the wound and the pharynx gradually closed. Within a few days it was noticed that he could whisper certain words. His speech has made gradual and favorable progress. It would seem that his method of voice production is not exactly like that of Solis-Cohen's famous case. His patient had a pocket in the upper esophageal region and emitted regular puffs of air as is done in ordinary laryngeal speaking. In this case the voice seems to be produced mainly from the air being forced, by pressure of the muscles over the roughened edges of the glosso-pharyngeal region, and in this way producing enough vibration for whispered speech to be made by the tongue, lips, teeth and palate. I can not detect the slightest symptom of recurrence of the growth. He has gained rapidly in weight. The epiglottis has rather a normal appearance and position.



Specimen, carcinoma of the larynx.



Specimen, total extirpation of carcinoma of the larynx.

46 W. 38th Street.

DISCUSSION.

Dr. J. Solis-Cohen—My case was operated on six years ago, and was doing well last year. He had a very large external growth, and I had to remove much of the skin with it. I believe that this is the ideal operation for the removal of these growths. Tracheotomy should be done ten or twelve days in advance, enabling the patient to become accustomed to breathing through the neck. This affords time for certain adhesions between the trachea and the skin, and this process, anchoring the trachea, renders the laryngectomy easier. Some few months ago, in reading a report of the Laryngological Association of Great Britain, I was impressed with the large number of successful cases presented at one meeting. I learned that most of these had been performed under chloroform and I think that is the best anesthetic in such operations. With ether there is more or less bronchial irritation and also vomiting after operation, and much of this can be obviated by the use of chloroform.

In my case I concluded that the voice was produced by the horizontal fibers of the inferior constrictor muscle of the pharynx. That patient learned to distend the sac by half swallowing the air, and if this man will learn to do the same, he will probably be able to produce a phonal sound, instead of the labial one. My case seems an example of the old idea that function precedes structure. Here was a man whose larynx had been removed, and who wanted to talk, and in the effort to talk organs connected with a different function were forced into use to accomplish the result. My patient is not able to do hard manual work, for he can not close his glottis, and an expiratory current of air can not get the leverage necessary for hard work. In the act of defecation it is necessary to close the glottis. He was obliged at one time to occlude the orifice externally, so that this act could be performed easily.

I used no dressing or packing, and I studied the patient to see whether in swallowing there is an actual dilatation of the esophagus or whether it is simply opened like a bag and the food pushed downward. Before the wound closed we were able to see that in swallowing, the esophagus did not dilate to receive the food. My patient does not wear a tracheotomy tube. He wore one for some time, but happened to forget it one day, and finding that he did not need it, has dispensed with its use.

Dr. Mackenzie—In the debate on malignant disease of the larynx at the Baltimore meeting of the American Laryngological Association, in 1890, I stood alone among my fellow-laryngologists, as I stand alone today, in advocacy of radical operation and by radical operation I mean total extirpation of the larynx with its lymphatics and lymphatic glands, as the only rational method of dealing with this too often fatal malady. Extirpation of the larynx was then, as it is now, denounced as an unjustifiable and ghastly procedure, and we are told that the operation should be abandoned because in malignant disease it has resulted in failure and that life has been shortened thereby. Even if this doubtful assertion be true, better a shorter life of comparative comfort than a prolonged life of hopeless agony. We are, however, dealing not with the past of this operation, but with its future. To the modern surgeon they are sufficiently apparent, but I believe there is one thing that the records of the future will show, namely, the reason so many cases have terminated in failure and death is because the disease has not been radically dealt with. As long as we have lymphatics to carry infection and glands to become infected, so long will our patient be subjected to ultimate danger. The more I investigate the subject and the more I see of the treatment of cancer in general, the more convinced I become that there is only one rational method of dealing with cancer of the larynx. Early total extirpation of the organ with its tributary lymphatics and glands, whether the latter be apparently diseased or not, is the only possible safeguard against recurrence or metastasis. By no other method can we give the patient a reasonable assurance of a permanent lease on life. The surgeon who is abreast of the times does not trifle with cancer in other organs. Why should the larynx be made the exception to the rule? We will have to learn the same lesson here that we are slowly learning in the case of cancer in other parts of the body. No one at the present day thinks of taking out half a breast, half a uterus, or half a kidney for cancer, no matter how circumscribed the growth may be. It is impossible by inspection either with the laryngoscope or after preliminary division of the thyroid, by transillumination or by the sense of touch, to limit the extent of the disease before operation. As I have demonstrated, even after removal of the larynx the disease may be apparent in one side of the organ and not in the other, and yet the microscope show extensive cancerous deposit in the seemingly normal side. This condition is liable to occur in cases in which the epithelioma originates in the deep-seated glands and may not approach the surface until a late stage of the disease. It is also possible that in a more or less advanced stage of cancer of the larynx or even in its early history we may find young cells in the neighboring lymphatics, as Halsted has demonstrated in the case of cancer of the breast. In the presence, therefore, of the fact that it is impossible to limit the disease by inspection and the sense of touch and in the light of the revelations of the microscope it becomes a serious question whether we accomplish any lasting good by any operation short of complete excision of the larynx and the neighboring lymphatics and glands. Certainly if the disease approaches the middle line, the imperative necessity of complete removal must be apparent to the most timid and doubting operator. Confronted by this uncertainty, the position of the surgeon is a most responsible one. Operations of this class should only be undertaken by surgeons of acknowledged skill and experience and with a conscientious recognition of the ethical relations of operator and patient. Thyrotomy with partial removal of the larynx is not up to date surgery, and is a reversion to and resurrection of a method of procedure that was discredited and abandoned half a century ago.

Beside the question of life-saving, all other considerations pale into insignificance. Given a cancer confined to the larynx (even though the entire interior of that organ be involved) in a person in fairly good condition, and offering no absolute contra-indication to operation, I would no more hesitate to recommend excision of the larynx and lymphatics than I would under similar circumstances hesitate to recommend excision of the breast. The conditions surrounding the two operations may be dissimilar and the danger greater in the one than in the other, but to the patient it is the choice between danger and death.

A great deal has been said in recent years about the dangers of thyrotomy and we are told that we must not operate if the lymphatic glands of the neck be involved. The so-called dangers of thyrotomy are largely fanciful. If there be any chance of saving life, I believe a preliminary thyrotomy justifiable, even in the presence of external glandular enlargement, provided such involvement be not, on its face, too extensive. More than that, if, on thorough exposure of the parts—assuming that there be no serious contra-indication to operation—it be found that the disease can be thoroughly eradicated, even if such eradication should involve more or less deep dissection of the tissues of the neck, it is far better to give the patient that chance of life than to allow him to drift on to certain and possible death.

Dr. Richardson—The extirpation of a larynx containing a growth which has been proved microscopically to be carcinomatous is as justifiable an operation as can be done in the range of surgery. The operation should be done early. It is impossible, from a laryngoscopic examination, to judge of the extent and character of the growth. We get such a foreshortened image that nothing can be ascertained except perhaps the fact of the malignancy of the growth. Operations short of total extirpation are worse than useless. Where tissue of a malignant nature still exists it is sure to lead to a fatal termination of the case. The radical operation is one which can be executed with considerable ease, and can be made almost a bloodless procedure unless some of the veins are severed; and is not attended with any marked degree of shock. The danger and difficulty lie in the post-operative stage, until the wound is healed. It is during this period that most of the cases succumb.

Dr. Cohen's plan of doing the preliminary tracheotomy ten or twelve days in advance is well advised. The tendency with many is to do the extirpation too soon after the tracheotomy. I fear that this was one of the causes of the fatal issue in my case, for I only waited a week, when two would have been better. However, I was forced to go on because of the weakened condition of my patient.

Dr. Sweeny—I would like to question Dr. Myles in reference to the influence on the nasal secretions.

Dr. Myles—They seem to be in very good condition.

Dr. Bryan—It seems to me that the patient swallows air and the voice is produced by a vibratory expulsion.

Dr. Makuen—Though this man can only whisper, I believe that this whisper is due to the action of the organs of articulation upon the natural column of air. It is clear to my mind that a whisper is not dependent upon the larynx or upon the vocal chords. There are no vibrating surfaces here as in Dr. Cohen's case.

Dr. Gibbons—Four years ago I registered the voice of Dr. Cohen's patient on the phonographic cylinder, and a year and a half ago I registered it again and found great improvement. Such a test should be made every six months.

Dr. Myles—These cases should be seen promptly by men competent to examine them, and should then be taken to a general surgeon for operation. I prefer a surgeon in most cases, because the operation does not occur frequently enough to keep the laryngologist's hand active, though I should not hesitate to do it myself if necessary.

REPORT OF TWO CASES OF SUPPURATING MASTOIDITIS.

Presented to the Section on Laryngology and Otology at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

BY J. H. BRYAN, M.D.
WASHINGTON, D. C.

In presenting the following cases of mastoid disease, it is with the object of demonstrating the evil results that are liable to follow acute suppurations of the middle ear, especially when treated with the indiscriminate application of poultices, and the injudicious use of the Politzer air bag. In spite of the advances that have been made within recent years in the treatment of these affections, and the serious results that are almost sure to follow when these cases are badly treated, we still find physicians using the poultice to cause an abscess of the mastoid region to break externally. It has been my misfortune to have had several of these badly managed cases to treat, the histories of two of which are herewith subjoined. I think they are good object lessons and may be a warning to some physicians not to allow their cases to go to the verge of dissolution before operative interference.

Case 1.—Acute suppurating otitis media, suppurating mastoiditis, abscess extending into the deeper tissues of the neck. T. M., white, age 56, was admitted to the Garfield hospital, June 24, 1896, stating that about six weeks previously he was suddenly seized with a severe pain in the left ear. He was treated with hot oil applications and poultices and the abscess discharged through the external auditory canal, giving him only slight relief however. The hot applications were continued notwithstanding a large swelling had formed back of the ear, which was excruciatingly painful.

On admission the patient was very much emaciated and weak. His mental faculties were decidedly obtunded, consequently it was not possible to obtain a clear history of his condition, from him. Temperature 100 degrees; pulse 60. There was a profuse discharge of pus from the external auditory canal, and a large swelling back of the ear, over the mastoid, extending upward toward the temporal region and down into the neck. Slight pressure over the swelling was very painful and caused the pus to flow more freely from the external auditory canal.

The patient was freely stimulated with whisky and strychnia and the mastoid region shaved and prepared for operation, which was performed June 25, under ether anesthesia. His condition was not considered favorable for anesthesia, but after the use of stimulants he bore that and the operation well. An incision was made commencing just above the auricle and extending down upon the neck about two and a half inches. This was followed by a discharge of a large quantity of pus, which was found to have burrowed into the deeper tissues of the neck. The cortex of the lower portion of the mastoid was completely destroyed, while the upper portion still remained firm. This was removed with the chisel and rongeur, and the antrum opened; all carious bone was removed with a sharp spoon, and in doing so the lateral sinus was exposed in nearly its full extent. As it was soft to the touch and no evidence of any septic infection, it was not opened. The sloughing tissue in the neck was scraped away with a sharp spoon, and after thoroughly irrigating the wound it was packed with iodoform gauze, and closed with a bandage; 8 P. M. temperature 101 degrees, pulse 120. Owing to the extremely weak condition of the patient he was freely stimulated with whisky.

June 26, 8 A. M. temperature was 98.4 degrees, pulse 96; 8 P. M. temperature 100 degrees, pulse 96, and stronger. Otherwise doing well.

June 27, 8 A. M. temperature 98.4 degrees, pulse 84. The wound was dressed, owing to the dressings being quite moist. In the neck wound there was still considerable sloughing tissue, which was removed. A continuous flow of pus was still observed coming from the external auditory canal.

June 30, temperature and pulse normal. Condition of the mastoid and neck wound very much improved. Large pieces of sloughing tissue removed from the lower portion of the wound. Pus continues to discharge freely through the external auditory canal, although little is observed in the mastoid antrum. The solutions pass freely from the antrum through the external auditory canal. The wound was dressed every other day on account of the free discharge of pus.

July 15, while the general condition of the patient has improved very much as well as that of the wound, pus still continues to flow through the external auditory canal. The patient was placed under ether, and the roof and posterior wall of the auditory canal were found to be in a state of extensive caries. The auricle was freed from its bony attachments and thrown forward, and the carious superior and posterior walls of the auditory canal removed with a sharp spoon. The auricle was then brought back into position and after irrigating the wound it was packed with iodoform gauze, both through the canal and from without. There was a rise of temperature to 99.8 degrees after this operation, but it fell to normal in a few days.

The general condition of the patient continued to improve, with the exception of a marked cerebral irritation amounting at times to decided delirium. This lasted about a week or ten days and then ceased.

September 30, the patient was discharged from the hospital, cured, the wound having closed completely, and with a hearing distance of one inch for the watch.

Case 2.—Acute suppurating otitis media, suppurating mastoiditis with a commencing infiltration into the neck.

The patient, a young man 19 years of age, consulted me Jan. 11, 1897, giving the following history: December 14 he was seized with a severe pain in the left ear following a slight attack of influenza. In a few hours there was a profuse purulent discharge from the auditory canal which gave him temporary relief, the pain returning, however, with increased severity and extending over the temporal and mastoid regions. Poultices were applied and the air douche used. In a few days a swelling appeared back of the ear, which became intensely painful on pressure. This form of treatment was continued until I saw him January 11.

His condition then was serious, he being exceedingly weak and emaciated. His temperature was 99 degrees.

On examination, a profuse purulent discharge was observed flowing from the external auditory meatus, but owing to the swelling of the canal no view of the membrana tympani could be obtained. The auricle stood out prominently from the side of the head, and back of it ever the mastoid region there was a large swelling extending into the neck. The parts were red and very sensitive, pitting on pressure. The patient was sent to the Garfield hospital and prepared for operation, which was peformed on the following day. The incision was made commencing just above the auricle, continued over the mastoid and terminating about two inches below the apex in the neck. Pus in large quantities was found at the apex of the mastoid, burrowing into the deeper tissues of the neck, but none was found over the upper portion of the process, the tissues being swollen from edematous infiltrations. After elevating the periosteum the cortex of the process was observed to be firm, and no opening communicating with upper cells or antrum could be found, but a probe passed readily through the large cell found on the under surface of the mastoid apex. The antrum was opened and the cortex removed with a chisel, when the cells of the mastoid were found to be in a state of caries, and the pus instead of breaking through the cortex found its exit into the tissues of the neck through the under surface of the apex where there is a large cell with very thin walls usually found.

After all the diseased tissue was removed with a sharp spoon, the wound was irrigated with a solution of bichlorid of mercury (1 to 3000), packed with iodoform gauze and closed with a bandage.

January 13, the patient is free from pain and feels generally comfortable. At 8 A. M. temperature 99.2 degrees; 4 P. M. 100 degrees.

The wound was dressed on the fourth day and very little secretion observed. The temperature was now normal and remained so during the convalescence of the patient. The subsequent dressings were made every third day; the wound continuing to heal rapidly, he was able to leave the hospital, cured, March 1, with a hearing distance of five inches for the watch.

While such cases as the above are not unusual in the experience of most aural surgeons, still they are of value in demonstrating to what extreme conditions patients suffering from suppurative inflammations of the middle ear may arrive, especially when over treated with the ever popular poultice, and subjected to the injudicious use of the Politzer air bag, a most valuable instrument when properly employed, but one capable of doing great injury in the hands of the inexperienced, especially when employed in cases of children with hypertrophy of the post-nasal lymphoid tissue.

818, 17th St., N. W.

AN HISTORICAL SKETCH OF THE OPERATIONS UPON THE MASTOID PROCESS.

Presented to the Section on Laryngology and Otology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1-4, 1897.

BY LAURENCE TURNBULL, M.D., PH.D.
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It is now 105 years since a Danish surgeon, Berger of Copenhagen, was suffering from non-suppurative inflammation of the tympanum attended with distressing tinnitus aurium and deafness. To relieve this condition the operation of perforating the mastoid process was performed. The patient being old and the bones very hard, the injection used would not pass through the opening in the mastoid into the middle ear. Pain, fever, sleeplessness, vomiting and delirium closed the scene and he died eleven days after the operation. The postmortem revealed "suppurative meningitis." Where the bone had been opened it was found to be two lines in thickness, while the perforator had entered much deeper.

A regimental surgeon by the name of Jasser, in 1776, performed the same operation upon the mastoid of a soldier who had suffered for a long period from a chronic middle-ear suppuration, with occasional subacute attacks attended by great pain. The region over the mastoid was swollen and the patient was half insane with pain. Jasser made an incision over the mastoid about an inch long and found a drop of pus. Encouraged by this he cut down upon the whole length of the mastoid bone. He found the surface roughened. He passed a probe quite deeply into the mastoid cells and injected fluid into the opening; it came out of the external auditory meatus, and at the same time a large quantity of pus was discharged from the external meatus. The patient immediately exclaimed that the pain had left his ear. He fell asleep and rested uninterruptedly for ten hours. In three weeks the opening behind the ear had healed, the discharge from the auditory canal had ceased and the patient heard better than before. Stimulated by this, Jasser performed the same operation upon the other ear of the same person, from which there was no discharge, but in which the hearing was impaired. The hearing is said to have also been improved after the operation, but this is very doubtful. There was no caries of the bone.

The operation received its name from "Jasser." The indications were correct in the first case, but were wanting in the second.

This valuable surgical operation lay dormant for over fifty years by this mistake.

Von Troeltsch, in 1861, published a valuable paper in *Virchow's Archiv* upon this subject of perforation of the mastoid, resurrecting and describing the operation in a clear and satisfactory manner. He then reported a case in which he had, in 1858, perforated the mastoid process with a blunt probe. According to Troeltsch's own words, although the indications that opening of the mastoid to remove dead bone and concealed pus and thus secure drainage, were now considered imperative and clear, he opened the softened mastoid with fear and trembling. He says: "I went to work with uncommon care, even with dread." The case was a success.

I now quote my own case, the report of which follows as given by Dr. D. B. St. John Roosa of New York (extract from *Philadelphia Medical and Surgical Reporter*, Vol. vii, p. 463, February, 1862) and published by him in a history of the operation, to be found in his work on "Diseases of the Ear" (1891, p. 540).

"In February, 1862. Laurence Turnbull, M.D., published two cases in which he made an incision down to the bone, and a third in which two months after he had opened the external tissues, he perforated the surface of the bone with a sharp hollow probe and applied nitrate of silver freely. A month later he again broke down part of the bone and nineteen days later he removed a large piece which was found to be movable with a probe. This was an operation similar to that of Troeltsch, although the German surgeon waited only a few days before venturing to perforate the cells with a probe, while the American delayed for two months. In spite of its exclusion from some tables, Turnbull's cases belong to the same category with that of the reviver of the operation." It was operated upon but three years after Troeltsch's case, and only one year after it was published. This lad, now a man of 34, made a perfect recovery and is still well and living.

In confirmation of the above facts, Professor Gruber, in his text-book "Diseases of the Ear" (Translation by Drs. Edward Law and Coleman Jewell, London. 1893, p. 462) states that, "in more recent times the attention of aural surgeons was again turned to this operative measure by Von Troeltsch, who gave as indications for its performance: Otitis media with collection of pus in the mastoid cells, which, even with coexistent perforation of the drum membrane, can not otherwise be evacuated, and the symptoms are too urgent to justify waiting for spontaneous opening of the abscess." The operation has been performed on these grounds with more or less good results by Von Troeltsch,[1] Turnbull,[2] Pagenstecher,[3] Follin,[4] Schwartze,[5] Gruber,[6] Mayer,[7] Jacoby[8] and others. The operation first came into more extensive use, however, in consequence of Schwartze's[9] zealous advocacy.

In the table published by Schwartze and Eysell they give the writer credit for his operation in 1862.

The indications given by Schwartze for performing the mastoid process are:

1. Acute inflammation of the mastoid process with retention of pus within the mastoid cells, when a permanent remission of the symptoms have not been brought about by Wilde's incision. The operation ought to be performed without waiting for symptoms of cerebral irritation or pyemia.

2. Recurrent swelling of the mastoid region, which has undergone temporary recession; or has led to abscess formation with or without fistulous openings in the integuments, even though no threatening symptoms exist at the time.

3. When after discharge of an abscess in the mastoid region, examination with the probe reveals a fistulous passage in the bone. Besides these generally recognized indications, the author considers the operation called for—

4. If with inflammatory processes in the ear, severe pains which resist all other treatment be present in the corresponding side of the head, even though no inflammatory appearance can be detected over the mastoid region.

In certain cases of tedious otorrhea the obstinacy of which is not sufficiently accounted for by the condition of the Eustachian tube and tympanum, and which resist long-continued and approved treatment on the ordinary lines, the discharge being offensive and mixed with cholesteatomatous masses or bony particles, even where no conspicuous changes can be discovered in the mastoid region, the author has recourse to operation; experience having taught him that after removal of the cholesteatomatous masses or granulations which are frequently present in the antrum or mastoid cells, the otorrhea ceases and recovery takes place.

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[1] Virchow's Archiv, Bd., xxi. 1861.
[2] Med. and Surg. Reporter, Phila., 1862.
[3] Archiv für Klinische Chirurgie, 1862, Bd. iv, S. 523 et seq.
[4] Gazette des Hôpitaux, 1864.
[5] Pracktische Beitraege zur Ohrenheilkunde, 1864.
[6] Record of aural patients treated at the Vienna Hospital during the year 1865.
[7] Archiv für Ohrenheilkunde, I. Bd.
[8] Ib., III. Bd.
[9] Ib., xiv. Bd. S. 202.

Sometimes, moreover, small circumscribed areas of inflammation exist in the mastoid process, which maintain the otorrhea and are inaccessible to ordinary modes of treatment. These are exposed by the operation and recovery is thus brought about more readily.

In connection with the two last-named indications, the operation acquires an exploratory significance, and under the modern favorable auspices of antiseptic surgical treatment, it may the more readily be undertaken on account of the danger which is always associated with a continuance of the disease.

255 South Seventeenth Street.

DISCUSSION ON THE PAPERS OF DRS. BRYAN AND TURNBULL.

Dr. C. H. Burnett—I would like to ask Dr. Bryan whether anything had been used beside poultices and the Politzer bag?

Dr. Bryan—In the first case the man was in a very low condition and could not give much information, but I understood that there had been only poulticing up to the time I saw him. In the other case there had been instillations of peroxid of hydrogen.

Dr. Burnett—In the histories of all the cases reported as acute otitis media followed by acute mastoiditis I can read between the lines that the mastoiditis is a secondary infection, and in some cases I can see that the ear was over treated and secondary infection followed. I believe that in most instances the secondary inflammation was caused by the use of peroxid of hydrogen. Acute mastoiditis following otitis media has become much more frequent since the introduction of peroxid. You can imagine that erroneous ideas of treatment some people have, by one instance. I once found that a patient of mine, a physician, from whom I had removed the ossicles, had been for a year in the habit of cleansing his ears with his own saliva. I am sorry to say that nearly all the articles on this subject state nothing as to the treatment before the patient was seen by the aurist. I believe that cases of acute mastoiditis, complicating acute otitis media, are artificial results of improper irritative treatment and not the necessary result of the primary disease. They are instances of secondary infection due to the introduction and retention of morbific germs, by the irritative treatment of the primary inflammation and I know of no agent so efficient in forcing pyogenic germs into the inflamed ear as the expansive, energetic hydrogen binoxid.

Dr. J. A. Stucky—I have seen many cases of acute mastoiditis caused by the use of peroxid of hydrogen in middle ear troubles, especially in acute otitis media. I consider it a dangerous remedy, and it is not right to use it in these chronic cases, unless there is a large opening.

Dr. Myles—A coagulum of the mucoid substance and the peroxid is formed and is left in the recesses, from which it can not be washed out.

Dr. A. B. Randall—My experience has been in absolute conflict with much that has been stated. I must speak a word in defence of the Politzer bag, the syringe and peroxid of hydrogen. They are in constant use in my practice. While I have been reproached with the fact that I have a considerable group of mastoid cases to operate on, I will ask anyone to point out a case of mastoiditis as a primary cause. These cases are almost all taken from the practice of other men. I have never seen any evil results from my vicious habits. The proper employment of the Politzer inflation in the early stages of otitis media is of great value; its abuse has no place whatever. The use of peroxid of hydrogen is limited ordinarily to the acute cases. The perforation is commonly small, especially in children. When the hot douche has not given good results I have taken care that my peroxid should go into the very places where it is said to do so much harm. We have bad results when the peroxid does not penetrate. With the use of the intra-tympanic syringe, carrying the peroxid into the cavity so that it bubbles out at the nose, I have seen these cases go on to rapid recovery. While I do not advocate this as a routine treatment, I have no fear as to the peroxid, and believe that it should be more widely used, especially in Europe where it is hardly known. Cases of the type mentioned by Dr. Bryan sometimes occur with peculiar frequency in the experience of some men. They are by no means as rare as is sometimes supposed. I have had perhaps twenty or twenty-five of them, and my assistant, Dr. Hammond, has had eight or ten. The cases to which we have reference today are acute.

Dr. Cline—I had a case in which I removed a large polyp from the external auditory canal. Later, when the patient was returning to a neighboring town, he had a chill on the road. He came under the care of a very good aurist, who for a week worked hard to save his life. There was inflammation of the mastoid cells. The doctor, I understood, had washed out the cavity with peroxid and had put something into the ear to stop the discharge suddenly. I believe that we should discriminate in our cases. If we have a large perforation we can use peroxid with more safety than with a small opening, but it must be used carefully.

The Chairman—I would ask Dr. Burnett if he objects to the use of peroxid in chronic cases to the same degree.

Dr. Burnett—I do not use peroxid at all, either in acute or chronic suppuration of the ear on account of its expansive force and the consequent risk of forcing pus into the middle ear cavities. It is perhaps less harmful in chronic than acute cases. We must regard the antrum as part of the middle ear, not the mastoid. Many acute cases will get well without mastoid disease. A natural siphonic action takes place between it and the antrum. When I was a medical student we never heard of mastoid disease occurring as a sequel of otitis media. Why should one man now see 100, 200 or 300 cases in a comparatively short time if it is a necessary result of ear disease? The so-called acute mastoid disease as a sequel is largely an artificial result.

H. D. Hatch, D.D.S.—I once had a lesson as to the explosive force of peroxid of hydrogen. In working on a tooth my instrument slipped up under the tissues, almost to the eye. The wound healed and was apparently all right, but later an abscess formed, well up toward the eye. There was no swelling around the eye, except this small point, and there was no wound in the mouth. I slipped a bistoury into the abscess and injected peroxid of hydrogen. Inside of twelve hours after my injection, which caused intense pain, the face was swollen and the eye black. I have ceased to inject peroxid into any cavity into which there is a small opening, except in some cases where I inject a little at a time and tease out the pus. I have had other cases where the mechanical force of the explosion gave great pain. Members of the dental profession use peroxid of hydrogen largely. I came to to the conclusion last winter that it was unwise to inject it into a bone cavity.

Dr. Bryan—I have seen serious results from the use of the Politzer bag and from the use of peroxid of hydrygen, but they were at the hands of operators who did not know how to use them. My object was not so much to advise the members of this Association against the use of these things as to urge their cautious use. I have thought it best to present these cases so that they might be an object lesson to those who are not so careful.

PHENOMENA OBSERVED IN TWELVE CASES AT VARIOUS STAGES OF THE OPERATION FOR SECTION OF THE INCUDO-STAPEDIAL ARTICULATION AND MOBILIZATION OF THE STAPES.

Read in the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, Pa., June 1-4, 1897.

BY E. B. GLEASON, M.D.
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PHILADELPHIA, PA.

The ear in which the patient's hearing was the more defective was invariably selected for operation. The night before the operation the auditory canal was thoroughly cleansed, syringed gently with a solution of bichlorid, 1 to 1000, and occluded with a piece of iodoform gauze, which was allowed to remain in position over night. The drumhead was soaked for one hour before the operation in a sterilized 4 per cent.

solution of cocain, by means of a pledget of sterilized absorbent cotton, which was saturated in the solution and inserted into the canal in contact with the drumhead. After the primary incision through the membrana, the edges of the wound and the intratympanic membrane was touched from time to time with a sterilized 10 per cent. solution of cocain. All maneuvers subsequent to the primary incision were thus rendered practically painless.

The steps of the operation performed for the relief of tinnitus and improvement of the hearing, in twelve cases of advanced sclerotic catarrh of the middle ear that had not improved as the result of non-operative measures, were as follows: An incision through the clear part of the membrana, as close to the periphery as possible, was made from a point below the level of the malleus tip to the short process, and the flap thus produced was turned forward over the malleus handle. An attempt was made to mobilize the chain of ossicles by traction in various directions upon the lower portion of the long process of the incus. In the last six of the twelve cases operated upon, the tendon of the stapedius muscle was then severed and the attempt renewed to mobilize the chain of ossicles by traction upon the long process of the incus. The incudo-stapedial articulation was next severed and the stapes mobilized if possible by lateral pressure and lever-like movements of a cotton-tipped probe in contact with the head of the stapes. In the last of the series of cases, sufficient force was exerted to fracture the crura of the stapes; but in this case not the slightest improvement of the acuteness of hearing followed the operation. There were however no disagreeable after-effects.

In all but one case the operation was comparatively bloodless. In this instance, however, such a persistent hemorrhage followed the primary incision through the drumhead that the operation was abandoned. Two weeks afterward an opening was made through the membrana over the incudo-stapedial articulation, by means of a cotton-tipped probe dipped in fuming sulphuric acid, the articulation severed, and the stapes mobilized. The slight improvement of the hearing that resulted from this procedure was lost during the course of an otorrhea that persisted for three or four weeks after the operation, but the patient was cured of an annoying tinnitus. Suppuration did not occur in any of the other cases.

Each of the twelve cases operated upon in the manner described above had their hearing carefully tested both with voice and watch at each step of the operation.

In no instance did the slightest improvement of the hearing follow the incision of the drumhead and the turning forward of the flap. Although the evidence of twelve cases is by no means conclusive, yet the writer can not help suspecting that the idea that improvement of hearing in catarrhal cases with patulous Eustachian tubes would follow the mere excision of a portion of the drumhead is a myth, and that the improvement of hearing that was reported to have followed this procedure was due in all probability to incidental mobilization of the chain of ossicles. This suspicion becomes more plausible when it is called to mind that Sir Astley Cooper did his operations with an ordinary trocar, and that up to the time of Wilde, the favorite instrument for performing the operation was that of Fabrizzi, consisting of a small trephine with a cork screw stilet, by means of which not only a section of the membrana, but also a portion of the malleus handle was usually removed. So inadequate was this instrument for the safe perforation of the drumhead that two deaths following the operation were reported, in London, by Dr. Butcher in 1846, and in these two cases, at least, it is probable that something more was accomplished by the operation than the mere removal of a disc of the drumhead and a most thorough mobilization of the ossicular chain.

It also seems probable that in many instances the improvement of hearing and relief of tinnitus reported as following the modern operation for the removal of the drumhead, malleus and incus, were the result of the incidental mobilization of the stapes. The only advantage in catarrhal cases of such a procedure over the operation described above, consists in the accessibility of the stapes for purposes of mobilization, which is probably more than counterbalanced by the constant exposure of the intra-tympanic mucous membrane to the danger of infection by pyogenic bacteria.

It was found impossible to improve hearing in any of the twelve cases by manipulation of the long process of the incus in the hope of mobilizing the incus.

Section of the stapedius muscle was accomplished, in two instances, with an audible snap and an immediate improvement of the hearing In both cases, however, further improvement followed the subsequent incision of the incudo-stapedial articulation and mobilization of the stapes.

The amount of force used where no improvement of hearing resulted from the operation, was in all instances sufficient to endanger fracturing the crura of the stapes, which actually occurred in the last case operated upon. In this and others where no improvement of the hearing followed manipulation of the stapes, it is probable that ankylosis of the foot plate of the stapes to the oval window existed to such a degree as to render it absolutely impossible to break up the adhesions without fracturing the crura in the attempt. Politzer has proven by his experiments upon the cadaver that when bony ankylosis exists between the foot plate of the stapes and the oval window the crura are invariably broken in an endeavor to remove the stapes by traction.

The duration of the vertigo which invariably ensues in the cases where improved hearing followed manipulation of the stapes, varied in duration from a few moments to three days. One case was obliged to lie down three times during the manipulation of the stapes because of dizziness and faintness, which, however, lasted only a few moments. In another instance the patient staggered almost like a drunken man as he was led away from my office at the conclusion of the operation. His dizziness lasted only twenty-four hours.

In no instance did any permanent injury to the auditory apparatus follow the operation. In all cases where tinnitus existed, it disappeared after the operation. There was, however, only in five a noticeable and practical improvement of the hearing. In one, improved hearing for the voice did not entirely disappear until three years after the operation. In all cases improved hearing for the watch invariably disappeared within a few months, probably as the result of the reformation of adhesions. In one or two hearing notably improved both for watch and spoken words for a few weeks subsequent to the operation. It seems more than possible that the hearing might have been again improved in some at least of the cases by incising the drumhead and remobilizing the stapes.

41 South 19th St.

DISCUSSION.

Dr. BURNETT I have seen several cases of perfectly mobile stapes with total deafness, and total ankylosis of the stapes with very good hearing. I think that so far the operation can claim to relieve chiefly in cases of aural vertigo. These cases can often be treated successfully by intra-tympanic operation, either by Dr. Gleason's method or, as I prefer, by the removal of the incus alone.

Dr. RANDALL—We may properly hope for this operation a place equal in importance to that held by the operation for cataract in the surgery of the eye. There, in a large number of cases, lies the impediment to the betterment of the organ of hearing. More attention should be paid to the proper testing of hearing in these cases. Disappointments will greet us for a long time, as they have done in the past, as in the case of the operation for the removal of the drumhead, which a few years ago was exploited as the new treatment for all ear diseases. Even with great care and proper selection of cases, results will often be very disappointing.

Dr. TURNBULL—I feel as if I had been an advocate of the removal of the malleus. One of my cases was operated on seven years ago and her hearing is still good. She was very deaf indeed. The benefit may have come from the mobilization which attended this operation. In another case I operated on a lady who had suffered greatly with vertigo. The vertigo was entirely relieved and she has fairly good hearing.

Dr. BERNSTEIN—I have removed the incus in three cases, but I shall never do the operation again. In one case, for about three weeks after operation the patient's hearing was decidedly improved, but after that she had to use a trumpet. This has been my experience in the other cases also.

Dr. MYLES—I have rather opposed the removal of the ossicles. When cures from this operation are reported, it is not always stated how long the hearing remains improved. I know one man whom a distinguished aurist persuaded to have his ossicles removed, and for awhile his hearing was improved; but now he can hear nothing. Two young men came to me two years ago, whose hearing had been much impaired for about two months. I found large exostoses and complete nasal stenosis, and one of them had considerable adenoid tissue and subacute otitis media. I advised rest. One of the young men told me that he had come from the office of a distinguished aurist who had been almost violent in his efforts to induce him to have the ossicles removed. I advised them both to wait and try the rest treatment first, which they did. They both hear well today. If the ossicles had been removed, they would have heard better for a time, and would probably have been reported as remarkable cures.

Dr. GLEASON—Until a couple of weeks ago, I supposed the result I obtained in a case operated on two years ago was permanet, but the patient told me that all the improvement had disappeared. I would advocate this operation only after everything else has been tried.

OBSERVATIONS ON SOME PATHOLOGIC CONDITIONS OF THE NASO-PHARYNX.

Presented to the Section on Laryngology and Otology at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

BY EMMA E. MUSSON, M.D.
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Believing that the presentation of cases having either special pathologic features or dependent on unusual causes, or amenable only to special lines of treatment, would be of interest. I have selected from my case book several groups of cases which have come under my observation during the past two years.

The first group comprises a number of cases of hypertrophied lymphoid tissue in the vault of the pharynx, all of which required for their relief operative interference. The points of interest in these cases, relate to the age and the character of the symptoms. Out of the last 230 patients in my case book, 34 had hypertrophy of the third or Luschka's tonsil. Of this number eleven were from 15 to 20 years of age; eleven from 20 to 25; eleven from 25 to 35, and one 40 years of age. The age of the majority of these patients attracted my attention on account of the prevalent belief that these lymphoid vegetations are peculiar to children and disappear at the period of puberty.

Of these thirty-four cases, nine were complicated with profuse post-nasal discharges. In five instances the growth interfered with singing upper notes; in one, with elocutionary work and in one with ordinary school teaching.

Two cases were complicated with hay fever; two with mouth breathing; two were subjects to attacks of acute pharyngitis and tonsillitis, and two were subject to frequent colds.

Twelve cases were complicated with disturbance of the ear. Of these, three had marked deafness; three were moderately deaf; one had purulent otitis media; two acute Eustachian catarrh and three tinnitus and fulness.

The majority of these cases had post-nasal catarrh. catarrh. The hypertrophied lymphoid tissue in at least 95 per cent. of the cases was entirely confined to the vault of the naso-pharynx. The growth varied in appearance and extent, from apparently smooth masses, one quarter of an inch in thickness to vegetations as large as those found in well marked cases in children. A number of these vegetations were connected with the Eustachian tube by synechiæ. Moreover in those cases complicated by diseases of the middle ear, the vegetations were fibrous in character while in those complicated by a profuse muco-purulent secretion, they were soft and friable.

Surgical procedures for complete removal of the growths, were followed by relief if not complete disappearance of all the symptoms except the deafness. There was a disappearance of the post-nasal discharges and of the seeming purulent rhinitis, and the patient was no longer subject to repeated colds and sore throat. The voice became more resonant in speaking and two or three notes were added to the upper register of the voice in singing.

Surgical interference which gives such brilliant results in early childhood, for the relief and cure of deafness, was in my cases followed only by slight if any benefit; not until after a long course of patient treatment of the middle ear disease was any improvement noticed. In those cases however in which the middle ear was but slightly involved and the symptoms present only at intervals a prompt cure was effected upon removal of the growths. Of the cases complicated with naso-pharyngeal secretions, four were of exceeding interest. In two of them the discharge from the nose and naso-pharynx was purulent, profuse and constant. In the two other cases the secretion was excessively profuse, but entirely mucoid in character. Three had a family history of gout and rheumatism, and had not yielded to prolonged treatment for nasal catarrh. In two the amount of lymphoid tissue was so small that I hesitated long before removing it; there was an entire absence of the gross appearance of adenoid growths, the vault of the pharynx showing only a thin sheet of lymphoid tissue. After the lapse of a year, during which there was no recurrence of the discharges, I felt that I had been justified in my operative procedures.

The methods resorted to for the removal of these growths were the forceps followed by curetting in the larger number of the cases. In two only I employed the galvano-cautery.

In reviewing the literature on this subject I found an article by Dr. Farlow, in which attention is called to the mistake frequently made, that adenoid growths in the post-nasal space are peculiar to childhood and that they disappear at the time of puberty. He also emphasizes the fact that the deafness occurring in adults as a result of adenoid vegetations is but slightly benefited by their removal. Bryson Delavan is quoted in the *Annales des Maladies de l'Oreille* as saying that adenoid growths persist after puberty. Moure makes a similar statement. Chiari, in the *Annales* for 1894, states that out of 233 private cases and 152 clinical, 16 cases between ages of 20 and 30 had lymphoid hypertrophy of the third tonsil.

W. H. Bates of New York, published a history of five cases of deafness in adults due to adenoid vegetations of which the youngest was 24 and the eldest 55 years of age.

This group of cases suggests several queries, to which I have been unable to furnish any definite answers: 1, as to the causes of absorption or non-absorption of adenoid vegetations; 2, what factors determine a variable group of symptoms in cases apparently similar; *e.g.*, why should the middle ear be involved in only a certain percentage of cases?

The second group comprises a number of cases of chronic naso-pharyngitis associated with, if not dependent on, the uric acid diathesis, employing this term in its broadest sense as a disturbance in the equilibrium which should exist between the production and elimination of uric acid.

The feature of this group, to which I ask attention, is a probability of the uric acid diathesis being the underlying and causative agent. It was pointed out by Beverly Robinson, in 1888, that there was apparently a correlation between post-nasal catarrh, gastro-intestinal disorders and lithemia and somewhat later Harrison Allen described the gouty sore throat. At the present time most authorities are united in the opinion that the majority of cases of chronic naso-pharyngitis are either due to some disturbance of the digestive tract or are local manifestations of some constitutional diathesis as lithemia, gout and so forth.

While the obverse of this was demonstrated by Turck of Chicago, who found in the stomach bacteria of the same variety as those in the mucus of the naso-pharynx, these bacteria can set up acid fermentation in the stomach. Believing that many cases of naso-pharyngitis are but local expressions of the uric acid dyscrasia, it has long been my practice, to look beyond the local nasal condition and so treat the patients constitutionally with anti-lithemic remedies. With a view of determining whether there was a defective elimination of uric acid, I had the urine of seventeen patients suffering from nasal and post-nasal disease carefully analyzed, using Haycraft's method for the uric acid test and the hypobromid process with Marshall's apparatus for that of the urea.

The majority showed a marked change in the normal ratio between the uric acid and urea excreted; the disproportion ranging from one of uric acid to seventy-four of urea, to one uric acid to eight of urea. Five cases had two or three analyses made, always showing a disproportion between the amount of uric acid the urea excreted; in Luff's table of fifty daily eliminations of uric acid and urea of a healthy adult man on a mixed diet, the highest percentage of elimination of uric acid was one to twenty-eight, the lowest one to fifty-five.

It was only in exceptional cases that I found any marked gastric disturbances. These analyses seemed to establish the fact that the presence of uric acid salts was the exciting cause of the naso-pharyngeal symptoms.

Most authorities, however much they may differ as to the formation or elimination of uric acid or the proportion which it should bear to the urea, admit that under certain conditions an undue amount is found in the blood; according to Levison and Luff in the form of a quadriurate, and in consequence is apt to be deposited at the point of least resistance. Luff in his Gulstonian Lectures states that uric acid deposits have been found in the mucous follicles of the pharynx. In the words of W. F. Dudley, the uric acid dyscrasia, like other dyscrasias, has localized areas of special selection for its clinical manifestations.

One such area appears to be the vault of the naso-pharynx. This region is rich in lymphoid and glandular tissue and susceptible to uric acid deposition and consequent irritation, with a change in the character of the secretion. This latter change may be the possible cause of the subsequent congestion and hypertrophy of the mucous membrane which, at first, is attended with a profuse secretion of mucous, and later by a blocking up of the gland ducts and an atrophy of the glandular tissue, to be followed by a diminution of water in the secretion, the formation of clots of mucus and adherent crusts.

It is at this stage also that the marked symptoms in cases of chronic middle ear catarrh begin to appear; previous to this time there has been but slight buzzing in the ears with a sensation of fulness lasting a short period of time. These attacks, however, become more frequent until the patient is conscious that hearing is gradually being lost.

The line of treatment was toward the correction of gastro-intestinal irritation or constitutional diathesis, in connection with that of the local condition of the naso-pharynx. It was only in the milder cases or those in the earlier stage of the affection that relief followed non-surgical methods of treatment. In all other cases the hypertrophied and granular mucous membrane of the vault and post-pharyngeal walls was curetted, with excellent results. In those cases where the disease had localized areas, probably due to the blocking up of the gland ducts, the galvano-cautery was used, followed by improvement only. Stazza argues that surgical measures only are applicable.

The third group comprises a number of cases in which acute follicular naso-pharyngitis was a concomitant of acute lacunar tonsillitis. The association of these two states attracted my attention several years ago. Since then it has been my rule to examine the naso-pharynx in all cases of acute tonsillitis, to determine the frequency and extent of the follicular inflammation.

In 50 per cent. there was a congestion and swelling of Luschka's tonsil with distinct points of follicular exudate. In about 40 per cent. of the remaining cases there was a congestion but no exudate.

Bosworth, in his book, refers to this possibility of an acute follicular inflammation of the third tonsil. This involvement of the naso-pharynx in acute follicular tonsillitis affords a ready explanation for the number of cases of acute inflammation of the middle ear which complicate these attacks.

The general practitioner would seldom err if he included the treatment of the naso-pharynx in all cases of acute infectious diseases of the pharynx and tonsils. A further argument in favor of the theory of the participation of the naso-pharynx in acute pharyngeal infections is that frequent cases of chronic post-nasal catarrh follow in the track of these attacks.

Moure, in the *Twentieth Century*, gives a detailed description of acute inflammation of Luschka's tonsil under the name of acute adenoiditis and, judging from the symptoms detailed, probably many so-called "colds in the head" would prove, on post-rhinoscopic examination, to be attacks of acute naso-pharyngitis or adenoiditis. And here I digress for a moment to call attention to two different phases a so-called cold in the head may assume, as the result of a constitutional dyscrasia: in one we have the preliminary stage of dryness and irritation followed by a profuse watery secretion, later becoming muco-purulent; but if the patient be a lithemic subject the stage of serous effusion is followed by a profuse mucoid secretion, tenacious in character, blocking up nose and naso-pharynx but never becoming purulent; resolution is prolonged beyond that of the ordinary cold.

Two cases of this description occurred in children of 14 and 16 years of age; one with marked family history of uric acid on both sides, on whom ordinary treatment for "cold in the head" had no effect, was put on a strict dietary and given potassium bicarbonate; speedy relief followed this treatment, along with marked improvement in the general health and freedom from colds.

I will close this paper with a description of three cases of direct infection of the naso-pharynx. The first, a student in the bacteriologic laboratory, accidentally broke a test tube containing a culture of streptococci, and although strict antiseptic precautions were immediately taken, within twenty-four hours there was an active purulent inflammation of the tissues of the naso-pharynx, and in forty-eight hours, when I first saw her, the mucous membrane of the naso-pharynx was so swollen as to almost entirely cut off the view of that region. The discharge into the pharynx was profuse, purulent and foul, the temperature 102 F., though probably higher during the first twenty-four hours. Culture tube tests of the discharge showed a colony of diffused streptococci. A long time elapsed after the disappearance of the purulent secretion and high temperature before reduction of the swollen mucous membrane took place.

The second case was a patient who, just recovering from an attack of acute rhinitis, superintended the opening of numerous cases of ostrich feathers in the raw state, packed in camphor; she was suddenly seized with a sense of suffocation and fainted. Two hours afterward I found the throat intensely congested; in twelve hours an acute naso-pharyngitis developed, with profuse purulent discharge and a temperature of 100 degrees F.; two days later the temperature was normal and the throat almost well. The patient was sent to Atlantic City; twenty-four hours thereafter there was a sudden rise of temperature and involvement of both frontal sinuses and the left antrum in an acute purulent inflammation. No cultures were taken. Is it possible that these two cases were like Stazza's, that of acute inflammation of Luschka's tonsil during an epidemic of influenza, or were they due to bacterial infection?

The last case is that of a physician who has been treated several times this winter for attacks of acute adenoiditis (Moure) which came on after exposure to cases of diphtheria or acute sore throat; the lymphoid tissue, between the attacks, now remains chronically hypertrophied. The patient is about 30 years of age and still retains in the vault of the naso-pharynx a small amount of hypertrophied lymphoid tissue that was not thoroughly removed in an operation performed six years ago.

258 South 16th Street.

DISCUSSION.

Dr. Richardson—Acute inflammation of the naso-pharynx antedating and occurring with acute inflammation of the tonsils is, I think, a much more common occurrence than we are apt to believe. I have seen a number of such instances and a number of cases in which the inflammatory changes have been limited to the naso-pharynx and the acute inflammation of the tonsil has not appeared at all. I saw one case where the whole vault of the pharynx had almost the appearance of an acute diphtheritic change, and there was no inflammation of the tonsil. I think it would be wise in all cases to examine the naso-pharynx carefully. I have for a long time observed that the uric acid diathesis has much more influence on naso-pharyngitis.

Dr. D. Braden Kyle—Luschka's tonsil is really a normal physiologic condition. In many cases inflammation is secondary and not the cause of the enlarged gland structure.

Dr. G. V. Woolen—I am not a bacteriologist, but I know that bacteria must be a cause of many of the troubles that we see. A chief function of the nose is to purify the air, and the impurities of the air which are largely bacterial in origin must influence the nasal conditions. Most people escape these troubles, and why? The conditions must be favorable for their development. When these are present the fact is expressed in acute attacks. Such conditions may be brought about by indiscretions of diet, or by the thousand other things that interfere with health. The pendulum has swung to the operative extreme. We must go back to the cleansing processes. Patients, themselves, can do much in this way, by thorough cleansing before meals, especially where there is uric acid trouble. We can not give too much attention to cleanliness, which is very closely akin to antisepsis. With a simple alkaline wash I have done much to prevent trouble.

Dr. Curtis—In my opinion the uric acid diathesis is far from being a complication of the disease. We should consider that it is due to the waste product of an overworked brain, very possibly due to an enfeebled condition of the body.

Dr. Wilson—Did I understand the last speaker to say that he considered these conditions due to an overworked brain?

Dr. Curtis—I meant the uric acid diathesis—not the adenoid growths.

Dr. Wilson—We see uric acid conditions in patients in whom the brain does very little work. I think it is reasonable to believe that there is something in the system which manifests itself in many ways, and which admits of bacteria taking effect on the membranes.

Dr. Jaques—Physical resistance is the important point to be remembered in treating these cases. The uric acid diathesis may be the means of bringing down the general resistance. If so, it is one of the exciting causes. It takes a number of factors to produce these conditions. The mouth is a perfect breeding-place for germs all the time, but only when the physical resistance is reduced do we have the proper conditions for disease. Bring up the vital resistance of your patients to the highest point, then treat the pathologic conditions.

The Chairman—A constitutional condition which disposes certain individuals to lymphoid enlargements, especially hypertrophy of the faucial and post nasal tonsils, has long been recognized. We are accustomed to call it lymphatism for want of a better term. That this is or may be synonymous with uric acid diathesis seems to me a new idea. I would ask whether the author found uric acid present in cases of chronic enlargement of the lymphoid tissues, or whether it was only in acute inflammation of those already hypertrophied. There is a constitutional tendency to recurrence of these growths after removal. Operators have endeavored to do thorough work; but even then several years after, in certain cases, there has been a recurrence of the hypertrophy. This is especially apt to take place, however, if a thorough operation is not done. Concerning the effect on the hearing, I have had cases of practical recovery from long continued deafness after operating for adenoids, but there are other instances in which but little improvement takes place. We are apt to look for improvement too early. Cases which have disappointed me at the end of a week or a month, perhaps, show marked improvement at the end of three months.

Dr. Musson—I did not intend to convey the idea that in my first group of cases the trouble was due to uric acid. In the second group I spoke of the uric acid diathesis, sometimes with a certain amount of lymphoid tissue. Where uric acid was present I did not commence curetting at once but tried constitutional treatment first. I feel sure that some of my patients who had uric acid trouble did not overwork their brains. All antiseptic precautions were taken in these cases. In adults I believe that curettement could be carried out without injury to the Eustachian tube or the surrounding tissues.

QUESTIONS REGARDING THE ETIOLOGY OF ADENOID VEGETATIONS AS FOUND IN THE NASO-PHARYNGEAL CAVITIES.

Presented to the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY M. C. O'TOOLE, M.D.
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That we possess no positive knowledge regarding the etiology of adenoid vegetations, as found in the naso-pharynx, can be ascertained by a brief study of the opinions expressed by writers on this subject. Scrofula, heredity, the acute exanthems, cold and dampness of climate and whooping cough, have all been mentioned as etiologic factors, while Gruber asserts that neither climate nor occupation appear to influence their development.

In a paper, "Suggestions Regarding Treatment of Diseases of the Ears and Throat in Children," read before the Medical Society of the State of California, April 1894, the following statements appear: "For the past three years, I have lost no opportunity of investigating the etiology of adenoid vegetations, and the results have been in every way confirmatory of former experiences. Five years ago, I removed adenoid vegetations from the pharyngeal vaults of three children, all of the same family; two girls and a boy, aged at the time of operation 3, 5 and 6½ years respectively. The mother incidentally mentioned to me, when speaking of her trouble, that she had suffered considerably with leucorrheal discharges at the time of their birth. She was then six months pregnant. A confrère remedied the abnormal uterine and vaginal secretions. The infant was borne in due time. It is now 3 years old, but has no abnormalities in the pharyngeal vault.

Since this experience, I have invariably questioned mothers, having children with these growths, and have in every instance found that they had been effected with abnormal uterine or vaginal secretions at the time of the birth of the child so affected. From these observations I have formed the opinion that acute suppurative inflammation of the middle ear in infants is, in most cases, the result of contact with gonococci bearing, maternal vaginal secretions during parturition and that catarrhal secretions under like conditions, are responsible for the existence of abnormal lymphatic follicles and adenoid vegetations as found in the pharyngeal vaults of older children.

The writer, being aware that his experience on this subject is as yet too limited to admit of positive conclusions, would nevertheless venture the opinion that obstruction of the nasal passages during infancy and early childhood by the causes and in the manner indicated is the chief etiologic factor in the development of post-nasal growths whether as adenoid vegetations or hypertrophied lymphoid follicles, also that subsequent asymmetrical development of the nasal structures and of the nasal cavities are frequently traceable to the same cause.

6 Eddy Street.

A CASE OF MYXEDEMA WITH PROMINENT NASAL SYMPTOMS.

Presented in the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia. June 1-4, 1897.

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The fact that the nasal condition was the only reason why this patient sought relief and that this seems to be so entirely dependent upon the general disorder leads me to report the history, which is as follows:

Mrs. I., age 38, was first seen Sept. 9, 1896. She complained of nasal stoppage with attacks of sneezing and watery discharge following an attack of grippe in May and persisting since then. For the past three weeks it had been worse. Examination of the nostrils at this time showed large boggy turbinates on both sides, rather worse on right, with a waxy paleness of the entire mucous membrane of the nostrils. Several constitutional remedies, as well as local applications, were tried in succession without the slightest effect on the condition. Oct. 26, 1896, frost having eliminated a possible hay fever and the hoped-for improvement not having occurred, I examined the nostrils again very carefully and was impressed by the waxiness of the membranes as contrasted with the condition found in ordinary rhinorrhea. It suggested to my mind a general rather than a purely local disease, and close questioning elicited the following more or less confirmatory history.

Family history: On the mother's side two aunts had attacks of asthma. A cousin of the father also had such attacks. No history of tuberculosis or of nervous disease, except rather far back on the father's side there was some consumption. The patient has always enjoyed moderately good health. She is married, the mother of four girls and one boy all living. The oldest is 13 and the youngest 5; all the girls have been more or less troubled with eczema. Since the birth of the last child the patient has had "abdominal trouble," but of what nature I did not learn. She has always had a nervous temperament; quick in action and thought. The bodily functions have always been regular with the exception of occasional bilious attacks and constipation. Menstruation has been and is still entirely normal.

While the nasal stoppage and sneezing were the symptoms which first compelled her to seek relief, she recalls that two years ago her hair, which before had been black and glossy, began rather suddenly to turn gray and become brittle It did not come out to any great extent however. It is at present iron-gray in shade, and dry, but not coarse. The nails are dry and brittle, the teeth in fair condition owing to close attention. Her dentist has told her however, that the teeth were soft and easily broken. There are no fatty tumors, no moles or warts, no swellings in the supra-clavicular region. She has noticed no patches on the skin other than a scaly eczema behind the ear on either side.

The skin seems however generally somewhat thickened. My attention was particularly attracted to the color of the skin of the face. It was markedly white with a bright spot over each cheek. This is not constant nor is the redness of the nose, which she tells me is sometimes present. The lips are full and high colored, the brows and lashes both of good thickness. Except when she has a nervous perspiration the skin is dry. There is frequently a puffiness under the lids although no other signs of edema. The features are neither coarse nor broad. She has never noticed any watery edema either general or local. The abdomen has felt swollen on a few occasions, but that she refers to the abdominal trouble. The thyroid gland is of small size but is distinctly apparent. I have been unable to learn of any nervous symptoms other than an irregular feeling of weakness with coldness of the hands and feet. There is no paralysis, tremor, or inco-ordination. Sight, except for some hypermetropia, is good. Hearing is normal. Smell and taste are both considerably affected by the nasal stoppage. The voice is nasal in quality. Speech is not delayed nor does there seem to be any mental heaviness or slowness.

Examination of the blood showed: red blood corpuscles 5,800,000, leucocytes 4,625, ratio 1 to 1254, hemoglobin 65 per cent.

There have been no hemorrhages from the gums or nose. The urine showed no abnormalities. The temperature is 98.6 degrees. Appetite and digestion are fairly good. Feeling convinced from this history, that there was more than a local condition to contend with and as some of the symptoms of myxedema were present, viz.: dry thickened skin, capillary injection over the cheeks, dryness and brittleness of the nails and hair and possibly the appearance of the mucous membranes, I ordered dessicated thyroids gram 0.32. t.i.d. She was not seen again until Dec. 4, 1896, when she reported that the powders had relieved her very much. I had ordered only enough to last ten days, but she had had no return of the symptoms until two weeks previously. The prescription was renewed. When next seen, Jan. 18, 1897, she reported having taken thirty-two powders between December 4 and January 8. While taking them the nasal symptoms were almost entirely relieved. Examination of the nostrils shows lessening of the puffiness and waxiness. Since this date she has taken powders more or less regularly with considerable relief.

It will be seen that while the general symptoms were not absolutely confirmatory of myxedema they were marked sufficiently to induce me to try the therapeutic test and in view of the happy results attending this trial I think we can safely make the diagnosis.

1423 Walnut Street.

GENERAL AND LOCAL ANESTHESIA IN LARYNGOLOGY AND RHINOLOGY.

Presented to the Section on Laryngology and Otology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

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In March, 1889[1], a very interesting discussion on the proper form of anesthesia to employ in nose and throat operations, took place in London. The discussion developed the widest differences of opinion among the eminent gentlemen participating in the debate.

It seems odd that notwithstanding our experience in these operations has so markedly increased since this memorable debate, there should still exist great differences of opinion.

This is to be deplored. While it is of very little moment as to the particular form of anesthesia an individual specialist uses in his practice, it is of vital importance as to the teaching of the great mass of our profession by whom these operations are being performed in increasing numbers year by year. If some order could be brought out of this chaos of opinion; a few plain and safe lines to guide the busy practitioner a good work would be performed.

For convenience of study the subject will be divided into four headings, namely:

1, Intra-nasal operations; 2, naso-pharyngeal operations; 3, pharyngeal operations; 4, laryngeal operations.

Intra-nasal operations.—Intra-nasal surgery has made prodigious strides since the advent of local anesthesia. Nor is this due alone to the fact that the comfort of the patient is less disturbed. By this method, we are enabled to follow each step of an operation deliberately and intelligently, and hence to do better work.

Under general anesthesia the patient is in the worst possible condition to make a satisfactory examination. The recumbent position (the only one tenable in chloroform and ether narcosis) is one unfavorable to proper illumination, an objection which has scarcely been overcome by modern electrical refinements.

The position and the anesthetic, both favor hemorrhage, which covers the field of operation and adds to the difficulties.

General anesthesia, therefore, is indicated in intranasal operations; 1, major operations, those in which large growths are to be removed, necessitating a considerable amount of dissection, and possibly involving the external tissues; 2, in large bony deflections of the septum, where it is necessary to break up the septum at its base; 3, in large bony spurs in which the relative position of the outgrowth to the surrounding tissues have been accurately determined; 4, congenital or acquired stenoses; 5, plastic operations.

The number of cases which come under the second and third groups, namely, deflections and spurs, are small, and one finds them growing less year by year as his experience in this work grows. It is seldom we know precisely the operative procedure we will follow in an individual case prior to the operation. For instance, in pronounced cartilaginous deflections, how frequently we find after the cartilage is freed a corresponding bony deflection, with perhaps exostoses and spurs.

We are not all favored with small fingers to enable us to determine by digital examination the extent and nature of deformities, nor are all nares of sufficient dimensions to permit such examinations to those so favored.

While breaking up a deflected bony septum or the removal of bony outgrowths are undoubtedly painful procedures, which pain no amount of local anesthesia can entirely annul, this discomfort is transient, and the benefits accruing from a method which will enable us to have the field of operation under our view at all times greatly outweigh the haphazard methods we are obliged to pursue in general anesthesia.

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[1] Discussion upon the paper of George Stoker on anesthetics in operations on the nose and throat, British Laryngologic Association, Wednesday, March 27, 1889.

There are, however, a number of conditions in which general anesthesia is necessary—which anesthetic shall we employ? In the discussion in London it was developed that chloroform had long been, and was still, in use in work of this nature. Dr. Silk believes that the routine use of chloroform is founded on the assumption that it is safest in children, and from which its use has extended to adults. Lennox Browne prefers the local anesthetic effects of cocain in intra-nasal operations, but gives a general anesthetic if it is indicated or desired.

He with Stoker, Silk, Dundas, Grant, and a number of prominent English laryngologists prefer the use of nitrous oxid in operations requiring but a few seconds. In those requiring a longer time nitrous oxid is given to produce insensibility and to avoid the discomfort of inhaling ether—the latter is then continued as the anesthetic.

In hospital work the plan of the London surgeons is ideal, but in private practice there are many difficulties in the use of nitrous oxid, and especially in operations at the bedside.

Chloroform can not be recommended for reasons which will be more fully discussed under naso-pharyngeal operations. Bromid of ethyl is too transient in its effect for these operations.

Ether then remains alone the safest and most reliable anesthetic.

The obstacles to the management of the patient which general anesthesia presents are in a measure met by care in position. The half-reclining or sitting position is not to be recommended. The one thing that would seem to justify such position in an intra-nasal operation would be that it is the most favorable in which to employ artificial light. Against this, however, is the utter uselessness of any light after the first incision, when the parts are covered with and obscured by blood. Indeed, in these operations one is guided almost entirely by the knowledge he has gained of the parts prior to the operation.

A very cogent argument against this position is its danger—one not to be lightly set aside, especially in the use of chloroform.

The Trendelenburg position, or one with similar objects in view, is without doubt the most satisfactory for the following reasons: 1, with proper electric appliances as good illumination may be obtained in this as in any other position. At our clinic at the Episcopal Hospital an ordinary incandescent light with a reflecting surface back of the globe is placed in the hands of an assistant and the light is thrown upon the field of operation at any desired angle. The various forms of electric head-lights may be employed with equal, perhaps, greater advantage; 2, this position causes the blood to gravitate to the post-nasal and pharyngeal spaces, whence it may be repeatedly removed by a sponge in the hands of an assistant, or, if at any time the blood flows too freely the head may be turned to one side and the blood allowed to escape from the opposite nostril or the angle of the mouth. This gravitation of the blood posteriorly not only lessens the danger of aspiration but it in a large measure frees the anterior portion of the nares, thus enabling the operator to have a clearer view of the field of operation.

General anesthesia in intra-nasal operations is but a sorry substitute for local anesthesia, and should be employed only when the necessities of the case urgently demand it.

We are obliged, at times, to meet the wishes and desires of our patients; some of whom prefer general anesthesia because the operation can be done without their consciousness. At the same time it seems to me a folly to undertake such operations merely to please the patient unless we are reasonably sure we understand beforehand every necessity of the case.

The larger number of intra-nasal operations being best undertaken under local anesthesia, we must now decide which of the few local anesthetics will serve our purposes best, and the manner of its use.

Cocain has held undisputed sway as a local anesthetic for about fifteen years and, in the main, leaves little to be desired. Those who have used it freely, however, have now and then observed effects which have given rise to anxiety, and a few fatal cases have been reported from its use.

It has always been a matter of doubt to me in these cases of cocain poisoning as to the part played by the shock of the operation. A nervous woman cuts her finger and faints at the sight of blood; this same woman should certainly be expected to faint during an operation on her septum. I believe that some of the cases which have been regarded as cocain poisoning are of this nature.

A very few can not be explained in this manner and we are forced to admit that in some subjects an idiosyncrasy exists to the drug.

More recently, eucain has been extolled as the equal of cocain in anesthetic power and, it is asserted, possesses no such tendency as the latter drug to produce intoxication.

Our experience with this new anesthetic is necessarily too limited to assert positively as to the latter claim. There is no doubt in the writer's mind as to the validity of the former.

In an article published in the *Philadelphia Polyclinic*, Jan. 23, 1897, the author gave an experience of six months use of this drug in the clinics of the Episcopal and Polyclinic Hospitals. It was found to have equal anesthetic power with cocain, both as to intensity and duration of anesthesia in the larger number of cases.

Its power to reduce engorged turbinates was also equal to that of cocain. In the pharynx, while it possesses equal anesthetic power to cocain, it lacks those unpleasant suffocative, choking sensations which the latter drug at times induces. It is, therefore, much pleasanter in its effects in this locality. In no case were any symptoms approaching intoxication induced.

These results have been confirmed by a riper experience. Eucain is now used at my clinics in all operations in the nares, naso-pharynx and pharynx, except in those few instances in which cocain seems to have a better effect.

Its use in the larynx has been abandoned because cocain has equal anesthetic power and is slightly less irritating and hence less apt to produce annoying and troublesome spasms.

The pleasantest manner of obtaining anesthesia in the nasal chambers is as follows: First spray both chambers with a 2 per cent. solution of whichever anesthetic we elect, to obtain tolerance for the harsher methods to follow. After waiting for one minute saturate a small pledget of cotton with a 4 to 10 per cent. solution of the drug and allow it to lie at the site of operation for from five to eight minutes.

Antipyrin in 5 per cent. solution has been found to intensify and prolong the anesthetic effect of cocain or eucain; therefore, if the projected operation promises to be a tedious one after the removal of the tampon of cotton, a spray of antipyrin (5 per cent.) may be passed through the nasal chambers.

Antipyrin also has a decided hemostatic effect and in operations upon the septum or the posterior turbinates, parts that are quite vascular, this drug will prove to be an agent of decided advantage. It is, however, much too irritating for use in the nasal chamber, unless preceded by the free use of eucain or cocain.

With these two reliable local anesthetics the rhinologist is well provided, and intra-nasal surgery is robbed of much of its terrors.

Naso-pharynx.—The most frequent operative procedure the surgeon is called upon to undertake in the naso-pharynx is that for the removal of adenoid vegetations from the vault.

There is great difference of opinion existing among surgeons regarding anesthesia in these cases.

Some viewing the operation as trivial, eschew the use of anesthesia in any form; others advise a local, and still others always employ a general anesthetic.

Probably much of this confusion and difference of opinion arises from an improper selection or arrangement of the class of cases.

In deciding upon the use of an anesthetic we should be influenced by the particular form of operation we are to employ and also by the age of the patient.

In adults and children of riper years who may be properly controlled these growths are best removed by means of the postnasal forceps.

These instruments should never be employed under general anesthesia, save by those thoroughly familiar with work of this nature and then guided by a finger insinuated back of the soft palate; this latter precaution is only possible to those having small digits, and hence the application of this method is limited.

The use of the forceps without the aid of the mirror in a space hidden from view has always seemed an unsurgicial proceeding and especially since we have the means at our command to bring the parts thoroughly under the eye and to follow every step of the operation.

In those cases, therefore, of hypertrophy of the pharyngeal tonsil in adults or older children, in which it seems preferable to employ the postnasal forceps, the operation should be performed under the local anesthetic influence of eucain or cocain and by the aid of the rhinoscopic mirror. There are many adults and older children either too nervous or with pharynges ill adapted for rhinoscpic work, these then will come under the same rules as those to be presently adverted to in the case of children.

By far the larger number of cases of adenoids occur in young children. The most popular methods employed for their removal are the curette, the fingernail or both combined.

In selecting an anesthetic, or in determining whether or not to use one, the surgeon is inflenced by the estimate he attaches to the operation. In the hurry of life and in oft-repeated successes he is apt to regard this as a trivial operation and one unworthy of much time consumed in the performance. Considering the proximity of important structures and the possibility of injury to the same, does this seem good judgment?

A general surgeon would deem it the height of imprudence to operate on a case and, especially if an anesthetic were considered necessary, dismiss it with little or no directions. He would rather have the patient remain in bed at least for a day to avoid any possible complication by means of chilling the surface, a contingency very possible to a child going into the open air a short time after an operation.

Adenoid operations are of daily occurrence in our clinics with and without the use of anesthesia and patients are dismissed with little instructions. It may be said that few accidents happen as a result of such methods. It is true we see few complications, but can we be certain they do not occur among a class of patients notoriously difficult to keep in view? Have we not seen acute inflammatory troubles of the middle ear follow this operation? Is it not possible that the apparent return of the trouble within a short period of time may be due to inflammatory conditions induced by exposure after the operation?

It has always seemed that the best interests of our little patients would be served were we to regard these operations of sufficient importance to demand at least one day's stay in bed.

These views have been borne out by my experience. At the Episcopal Hospital those cases treated in this manner have been free from complications of any sort and the results have been most satisfactory.

The operation of curettement of the pharyngeal vault is a painful one; slightly less so by the use of eucain or cocain. It is therefore scarcely a humane procedure without an anesthetic in young children. To forcibly hold a nervous, irritable child and subject it even for a few seconds to severe suffering is a great tax to the nervous energies of that child and might lead to serious consequences.

The pain together with the gagging produces such contraction of the phayngeal muscles as to place the parts in the most unfavorable position for good and thorough work.

General anesthesia should be employed in the removal of adenoids for the following reasons: 1. The operation can be performed in a more efficient and satisfactory manner. 2. It is attended with less danger of depressing effects to the nervous system of the child. 3. It serves as an extra inducement to treat these as surgical cases requiring care in the after-treatment and enables the surgeon to keep the patient in bed at least one day and thereby conduces to a successful result.

The operation can be done so quickly that the anesthetic which seems eminently suitable for these cases is nitrous oxid gas, the effects of which are transient.

In the London Throat and other hospitals in Great Britain this is the anesthetic employed, and in the discussion in London, already adverted to, the consensus of opinion was in favor of the use of this gas.

Dr. Silk[2] prefers it because it is pleasant, safe and can be administered in every position of the patient. No previous preparation is necessary and the recovery from it is rapid and perfect and the after-effects *nil.*

Lennox Browne[3] uses no uncertain language in his advocacy of nitrous oxid gas in these operations. He says: "The rapidity with which the patient can be anesthetized by gas, the almost constant absence of any unpleasant after-effects, the exceedingly short interval required for complete recovery of consciousness in addition to the incalculably greater safety on general grounds of its administration over any other agents, not only constitnte strong arguments for its employment where the time required for the completion of the operation does not exceed from forty-five to fifty seconds, but actually renders the use of other agents culpably unjustifiable."

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[2] Silk: Journal of Laryngology, London, 1889, iii, p. 177-181; 238-242.

[3] Browne: Med. Press and Circular, London, 1893, n. s., lvi, p. 136.

Nitrous oxid has had more or less extensive trial in this country and is well thought of by those familiar with its use. In hospital practice, and especially if care in the after-treatment follows its use, nitrous oxid leaves little to be desired as an efficient and safe anesthetic in the removal of adenoid growth in young children. In private practice, however, the cumbersome nature of the apparatus necessary for the production of this gas renders its use awkward, save in office work and here its use can not be recommended for reasons already stated.

Impressed as the writer is with the advantages of treating these as any other surgical cases, where it is possible to do so, we must needs search for an anesthetic safe and reliable which may be employed at the bedside.

Chloroform has long been use and especially by the English surgeons.

The chief reasons for its use have been that it is pleasant in its effects, was supposed to be harmless in children, quick in its action and free from unpleasant after-effects. Bosworth in the recent edition of his work favors this anesthetic.

When it is considered that no less than nine deaths occurred in England in one year from the use of chloroform, it should cause the surgeon to hesitate before employing it.

Dr. Silk, the anesthetist for the Great Northern Central Hospital clearly and forcibly states the advantages and disadvantages of chloroform in these operations. I quote from his paper: "I believe that the routine use of chloroform is founded upon the assumption that it is safest for children, a general proposition with which I in no way agree, and from which I fancy its use has extended to adults. Other advantages claimed for it are:

1. That it is simple to administer, and the resulting narcosis is easily maintained. It does not come within the scope of this communication to point out that these advantages are much exaggerated, but even if this were not the case I hardly think that the convenience of the operator should be placed above the safety of the patient.

2. That the bleeding and turgesence of the mucous membrane is less than when ether is used; but even if this were true the difference, as I have already pointed out is so slight that this advantage almost sinks into insignificance.

3. That the primary narcosis is more profound. This should I think be classed rather as a disadvantage, inasmuch as the zone maniable, to which I have already referred, is in respect to chloroform very narrow, and therefore even if no respiratory embarrassment prevailed, its use is always attended with a certain amount of risk; much more is this the case when the comparatively pure vapor which accumulates at the back of the throat may be inhaled at any time and is quite beyond our control.

The objections if not numerous are weighty:

1. I can fully endorse the view that chloroform administrations are always a source of anxiety to the anesthetist and in some instances of narrow escapes to the patients, and this is much more the case in naso-pharyngeal operations. On account of the accumulation of the blood at the back of the throat, and consequent interference with the respiratory functions, the heavy chloroform vapor speedily collects above the larynx, in a nearly pure or highly concentrated state. Hence the attacks of syncope and apnea which so commonly occur without the slightest warning, when chloroform is being administered. Its slight diffusibility, too, tends to permit of its accumulation in the lungs, and is accentuated by the respiratory failure. Hence the attacks of syncope and apnea occurring as they frequently do, some time after the administration has been withdrawn.

2. The after-effects of chloroform are often very prolonged. Such immediate effects as nausea, the loss of blood swallowed, are probably no better and no worse than those attendant upon the administration of ether, but profound prostration and digestive disturbance are said to continue for days.

3. Its administration in any but the absolutely recumbent position is quite inadmissible.

Bromid of ethyl is highly thought of both by the German surgeons and a few in this country. So far as the quick action and pleasant effects are concerned, this drug seems peculiarly fitted for these operations.

Morgenthau[4] of Chicago reports the results in 100 cases of adenoids in which bromid of ethyl was the anesthetic employed, and refers to Moritz Schmidt of Frankfurt-on-the-Main as having used it in 200 cases.

Morgenthau thinks that bromid of ethyl should not be used in chronic heart disease, 1.85 c.c. for children and 2.9 to 3.7 c.c. for adults is sufficient. In from forty to sixty seconds breathing becomes stertorous and for two minutes the patient does not feel pain. He operates in the upright position with the head inclined slightly forward so that the blood may flow out of the mouth.

He finds that the anesthesia, operation and recovery takes from five to seven minutes.

In the 100 cases of Morgenthau and 200 of Moritz Schmidt no deaths and but few unpleasant symptoms occurred.

Bromid of ethyl has as advantages, quickness of action, pleasantness both in the administration and the after-effects. The unfortunate result of the first introduction of this drug in Philadelphia by the late Dr. Levis, in which two patients succumbed, has deterred the profession there from its use. It is claimed, however, by those familiar with its use that the drug is nearly as safe as ether and that the early deaths were due to imperfections in the manufacture or in the substitution of bromid of ethylene a much more dangerous product.

The testimony of so many worthy and careful observers would seem to warrant that this drug which has so many advantages, should have a more extended trial.

Ether is the safest and perhaps the most widely useful anesthetic.

It is often unpleasant both in administration and after-effects but these are of slight importance in the security one feels in its use and in hospital work; following along the practice of the London surgeons its use may be preceded by the more pleasant nitrous oxid gas.

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[4] Morgenthau: Ethyl Bromid, JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION, 1895, xxiv.

In the use of ether in removing adenoid growth from the vault of the pharynx, the anesthetic should be used to complete relaxation.

The writer is not in sympathy with those who use it short of this stage and has many times witnessed operations which have been delayed and complicated by the struggles and cries of the patient.

Once complete relaxation and insensibility have been obtained the anesthetic may be permanently withdrawn and the operation proceeded with, uninterrupted by any movement on the part of the patient. Given in this manner it is quickly recovered from and is much less liable to produce vomiting and other unpleasant effects.

The same method of procedure is applicable in those cases in which it is found necessary to remove both the faucial and pharyngeal tonsils. Here, however, it is best to push the ether a little more thoroughly than is the case where the simple adenoid operation is done, for the reason that after excision of the tonsils some little time is consumed in allowing blood to escape from the mouth before curetting the vault.

Incidentally the position of the patient during these operations is of importance. The most satisfactory results are obtained in operations in the naso-pharynx in that position which places the posterior wall of the pharynx and naso-pharynx in the most dependent position. This is accomplished by the Trendelenburg position or a modification of the same. By this method we are not delayed by gurgling of blood in the pharynx and symptoms of asphyxia and the danger to respiration is at a minimum.

At the house of our patient the true Trendelenburg position is not always feasible. In this case all that is necessary to obtain the same result is to allow the head to hang over the edge of table or bed. The blood is sponged from the pharynx by an assistant, the patient is turned on the side and the blood permitted to escape from the nose or the angle of the mouth.

Pharyngeal operations.—Nearly all the operative measures the laryngologist is called upon to perform in the pharynx can be accomplished under local anesthesia.

Eucain is to be recommended in this locality. It causes less discomfort to the patient and it is also probably less likely to give rise to unpleasant general symptoms.

Hypertrophied tonsils, the most frequent condition calling for surgical interference in the pharynx, when uncomplicated by anenoids at the vault, may readily be excised without the use of a general anesthetic.

This operation is accomplished so quickly, with so little pain (which latter may be annulled by local anesthesia) and the work can be done so effectively that it seems an unnecessary complication to induce general anesthesia.

In nervous, irritable children in whom the shock of operation and the necessary restraint might prove serious to the nervous system of the child, transient anesthesia is to be recommended. Nitrous oxid is eminently useful in cases of this nature.

Hypertrophied tonsils, associated with adenoid vegetations at the vault should be treated in a similar manner to that spoken of in the discussion on the removal of hypertrophied pharyngeal tonsils.

Laryngeal operations.—All intra-laryngeal operations are performed under local anesthesia.

Cocain is preferable in the larynx, because its anesthetic properties are equal to eucain and it is distinctly less irritating and consequently less liable to produce unpleasant spasms. By local anesthesia the modern laryngologist is enabled to remove growths formerly deemed inoperable or only removed by splitting the thyroid cartilage, thus causing subsequent impairment of the voice.

The various major operations, such as laryngectomy, thyrotomy and tracheotomy, are accomplished under general anesthesia. Recently, however, a number of tracheotomies have been done with cocain injected along the line of operation as the only anesthetic employed.

This method may occasionally be possible in adults or in children already narcotized by prolonged dyspnea, but it would be exceedingly unwise to advocate it as of general utility in children, upon whom we are most frequently called upon to do this operation.

1804 Chestnut Street.

TONSIL AND ADENOID OPERATIONS UNDER ANESTHESIA BY NITROUS OXID, AND NITROUS OXID AND OXYGEN: A PRELIMINARY REPORT.

Presented to the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY W. E. CASSELBERRY, M.D., AND F. MENGE, M.D.
CHICAGO, ILL.

The desirability of an anesthetic that would obviate the general objections pertaining to chloroform and ether in operation on tonsils and adenoids has been the source of much research. The chief objection to chloroform lies in its danger; bromid of ethyl has scarcely attained any greater confidence; ether, while reasonably safe, is so prolonged in its effects as to be inconvenient for this purpose. Nitrous oxid alone has been employed by a few operators, notably at the Central London Throat Hospital, but the available operating period from a single administration is almost too brief for the satisfactory removal of both the tonsils and adenoids. Experience has proven this anesthetic, however, to be safer than any other and to possess the advantage of a rapid revival of the patient; therefore following Gardner, Hunt and Hewitt of England, and Van Arsdale of New York, we have sought to modify the action of nitrous oxid by the addition of oxygen in order to render it more available and less objectionable for this operation.

As regards the safety of nitrous oxid, it is estimated by H. C. Wood that it is given in 750,000 cases annually and we have been able to learn of but thirteen deaths fairly attributable to it.

The anesthetic effects of nitrous oxid gas were first noted by Sir Humphrey Davy, about the end of the last century, and it has since, from year to year, come into more general use.

Under nitrous oxid the respiration becomes slower and if the gas be pushed, a complete cessation of respiratory movements eventually takes place. The heart beats quietly, fully and regularly under this gas. The pulsations are somewhat slow in profound narcosis. There is, however, but slight danger from heart failure resulting from the inhalation.

In animals killed by nitrous oxid gas the heart goes on beating even after the respirations have quite stopped. It is therefore less important to watch the pulse than the respiration.

So it will be seen that in the administration of nitrous oxid, the respiratory tract is most involved, the respiration usually rapid from the excited condition of the patient, after a short though variable period of inhalation of from one to two minutes, becomes deep and even snoring, and a complete anesthesia with unconsciousness is produced, lasting from thirty seconds to one and one-half minutes. But accompanying this and keeping pace with it, we have all the phenomena of asphyxia, due to a deficiency of oxygen in the air passages and tissues of the body.

One of the most evident means of avoiding this formidable objection with its cyanosis, stertor and general asphyxiation, was the addition of pure oxygen gas to the nitrous oxid, but, however, in such proportion that its value as an anesthetic should not be impaired.

The question as to whether nitrous oxid is an anesthetic *per se* or depends upon the accompanying asphyxia for its anesthetic effect, has never been definitely determined. From the fact that anesthesia can be produced by the gas with from 5 to 12 per cent. of oxygen it would seem that nitrous oxid is, in itself, an anesthetizing agent, although even then the slight asphyxia usually induced doubtless serves to augment the anesthetic effect.

A number of combinations have been used by different authors with varying success. The late Prof. Paul Bert, by administering under increased atmospheric pressure a mixture of oxygen and nitrous oxid, succeeded in producing a prolonged and profound anesthesia, at the same time maintaining normal oxygenation of the blood. He used 20 per cent. of oxygen, for the reason that the same percentage exists in atmospheric air. He obtained the necessary atmospheric pressure by having built, a large glass operating chamber, in which he together with his assistants and the patient were hermetically sealed, the desired density then being regulated through the medium of an air pump.

Van Arsdale sought to dispense with this chamber by substituting a tight fitting mask, giving the gas with 10 per cent. of oxygen, under pressure, with good results.

Hewitt of London, after experimenting upon a number of cases, found a 12 per cent. oxygen mixture produced anesthesia after an average inhalation of 126 seconds, of 44 seconds duration, while the average quantity of gas used was 8¾ gallons.

Having seen a number of anesthesias for dental purposes, we used at first the pure nitrous oxid on several cases and found that the gas, when pushed to its physiologic effects, afforded an anesthesia sufficient for operating purposes of about forty-five seconds duration, so we at first abscised the tonsils, then re-applied the gas and finished the adenoids, practically, with a second anesthesia.

Then we tried a 25 per cent. oxygen mixture but after twelve minutes and no anesthetic effect, we substituted the pure nitrous oxid, the patient being fully under the influence, to loss of eye reflexes, in less than a minute.

After this, some six cases were operated on with an approximate 10 per cent. mixture and with two applications of the gas, the average time of the first administration being about four minutes, while that of the second was about two.

Then we still further reduced the amount of oxygen and anesthetized completely with an approximate 5 per cent. mixture without much cyanosis or asphyxia in an average of two minutes. We also found that this mixture so lengthened the available anesthetic operating time, that we could remove both tonsils and the adenoids with one application of the gas, this complete operation occupying about one minute.

This is essentially a time-saving operation, and to do it every detail must be arranged beforehand; every instrument that could possibly be of use must be within easy reach of the operator. We inserted the mouth gag, using an O'Dwyer gag, before beginning the anesthetic. The patient was then placed in our usual operating position on the lap of an assistant, the head being on the assistant's left shoulder. The operator then turned on the gas from both cylinders, filling the intermediate rubber reservoir, whence the mixture was conveyed to the patient through a rubber tube to a snug-fitting mask, allowing absolutely no air to enter, this mask being held tightly over the nose and wide open mouth of the patient by the operator until the full effect of the anesthetic had been reached, recognized as with other anesthetics, by unconsciousness, loss of eye reflexes, etc.

The mask being removed, the patient is ready for operation. Both tonsils were at first abscised, in half the cases by a Mathieu and the other half with a Casselberry tonsillotome, and the adenoids were then immediately removed by a Gottstein curette. This operation can be performed without undue haste in one minute in the average uncomplicated case, but we do not wish to be understood as advocating such a quick method in every case, for when the tonsils are bound down by adhesions or other complications exist which require time and deliberation during the operating, then nitrous oxid is not a suitable anesthetic.

We have operated on fifteen cases in this manner; all were children, the youngest being 2½, the eldest 11 years of age, five were boys and ten were girls, and all but one case were afflicted with both enlarged tonsils and adenoids. The patients were in all degrees of excitement, but immediately after the first two or three spasmodic inhalations they became calm and the respirations were full and regular.

The appended schedule gives the time of the first inhalation, time of operation on tonsils, the second anesthesia, the "adenoids" and age.

	Anesthetic.	Tonsils.	2d anesthetic.	"Adenoids."	Age.	Gas mixture
I	2 min.	1 min.	1½ min.	½ min.	4 yrs.	N_2O
II	3 "	1½ "	1 "	½ "	6 "	N_2O
III	11 "	1 "	½ "	¾ "	4½ "	(N_2O 75 O 25) (N_2O)
IV	6 "	1½ "	2 "	½ "	8 "	N_2O 90 O 10
V	2½ "	¾ "	½ "	½ "	5½ "	N_2O 90 O 10
VI	1½ "	½ "	1 "	½ "	4 "	N_2O 90 O 10
VII	5 "	½ "	......	½ "	5 "	N_2O 95 O 5
VIII	3 "	1 "	......	½ "	5½ "	N_2O 95 O 5
IX	2 "	½ "	......	½ "	2½ "	N_2O 95 O 5
X	1 "	¾ "	......	½ "	4 "	N_2O 95 O 5
XI	2 "	½ "	......	......	9 "	N_2O 95 O 5
XII	1½ "	¾ "	......	¾ "	11 "	N_2O 95 O 5
XIII	4 "	½ "	......	¼ "	5 "	N_2O 95 O 5
XIV	3 "	1½ "	......	½ "	4 "	N_2O 95 O 5
XV	1 "	½ "	......	½ "	3 "	N_2O 95 O 5

The apparatus required is rather cumbersome and heavy and consists of the face piece or mask, the rubber reservoir and the cylinders of oxygen and nitrous oxid. The mask is made of a metal frame which is covered by rubber, which at its edge, at the point of contact with the face, is in two layers and may be inflated. It is fitted with an expiratory valve as well as one whereby the gas may be turned on or off.

The rubber bag or balloon has a capacity of five gallons and serves as an approximate measure of the amount of gas consumed as well as for the mixing of the gases and on it, also, we made the necessary pressure to force the gas to the patient. This apparatus we purpose modifying by the substitution of a cylindric gasometer for the rubber bag.

Nitrous oxid gas is now put into the liquid from under high pressure and keeps in this condition indefinitely, being placed in steel bottles. Oxygen in copper cylinders is now well known, while rubber tubing, with a junction, forms the connection with the bag.

The advantages of this mixture of gases over chloroform and ether are: 1, the absence of danger; 2, no preparation whatever is necessary; 3, the upright position usually desired may be safely assumed; 4, hemorrhage seems in no way to be affected by it; 5, the time of the whole proceeding is greatly lessened, from an hour and a half to as many minutes; 6, the after-effects, the vomiting and retching, are entirely obviated, and the patients may be safely removed to their homes within fifteen minutes.

It would only be fair to state the disadvantages that have occurred to us: 1, somewhat cumbersome apparatus required; 2, greater number of assistants desirable; 3, haste with which it is necessary to operate.

In reference to the haste, after some experience with the method, the operator finds that he has more time at his disposal than he at first thought possible.

We would say in conclusion, that we have in nitrous oxid mixed with a small percentage of oxygen, an anesthetic that is relatively devoid of danger, taking only a few minutes to administer, and giving a sufficiently long narcosis for the ordinary tonsil and adenoid operation and which is particularly suitable for dispensary use.

LITERATURE.

British Medical Journal, Feb. 21, 1891.
American Journal of the Medical Sciences, August, 1891.
New York Medical Journal, March 7, 1891.
Dental Cosmos, November, 1891.
Lancet, 1889.
Buxton: Anesthetics.
H. C. Wood: Therapeutics.
Deutsche Medicinische Wochenschrift, 1886.
Comptes Rendus des Séances de la Société de Biologie.
London Clinical Journal, Aug. 26, Sept. 2, 1896.

DISCUSSION ON PAPERS OF DRS. GIBBS AND MENGE.

Dr. Roe—Some years ago, before cocain was introduced, I used nitrous oxid gas for small operations and particularly cautery operations in the nose, but since cocain was introduced I have abandoned its use altogether. Nitrous oxid gas and bromid of ethyl are serviceable only in operations requiring but a few moments for their performance; whereas in operations that are at all prolonged they are entirely insufficient, and cocain, chloroform, ether or some other less evanescent anesthetic, either local or general, must be resorted to. In some cases the operation for the removal of adenoid growths and also enlarged tonsils can properly be performed in from forty-five to sixty seconds, but in many other instances the conditions are such that it is absolutely impossible to properly perform the operation thus quickly; therefore nitrous oxid gas or bromid of ethyl are adapted only to a limited class of cases. In adults and older children I have found cocain anesthesia quite sufficient for these operations, but in young children I use chloroform only. For hospital and clinical work, nitrous oxid gas and bromid of ethyl simply have the advantage of expediting matters somewhat. I have not only had no trouble from the use of chloroform, but have had most excellent results and have not felt the necessity of using bromid of ethyl, which is sometimes troublesome to procure perfectly pure, or of bothering with the cumbersome apparatus which the use of nitrous oxid gas requires. In children the use of chloroform is very simple and perfectly safe. It affords ample time for the performance of the operation, and with the proper manipulation of the child there is no danger of the inspiration of blood into the trachea, nor are there any other conditions that contraindicate its use.

In adults, the chief danger in the use of chloroform lies in the concentration of the vapor or in the exclusion of sufficient oxygen, and it is to obviate this danger that oxygen gas mixed with chloroform vapor is employed. Three years ago, while in London, I procured a new apparatus for administering chloroform, devised by Krohne & Sesemann, and since that time a similar apparatus has been made by George Tiemann & Co. of New York. The mask in this apparatus is so arranged that there is free ingress through the center for atmospheric air, while the chloroform is propelled into it, in the form of vapor, by passing the air through the bottle containing the chloroform. When there is prospective danger from the use of chloroform, oxygen gas can be substituted for the ordinary atmospheric air forced through the chloroform liquid in the bottle. By the employment of this apparatus, the use of chloroform is not only rendered perfectly safe for children, but also for all adults in whom there is not some physical complication to contraindicate its use.

In Paris they use chloroform entirely as a general anesthetic and it is not considered dangerous. I have in a number of instances seen the Parisian surgeons push the chloroform far beyond the point that we would consider safe and the patients recover all right.

We may reasonably conclude that the use of nitrous oxid gas and bromid of ethyl as anesthetics is of special service in those adenoid, tonsillary and nasal operations in children and nervous and sensitive adults which can be quickly performed, and especially in clinical and hospital work, in which it is necessary or desirable to dispose of the cases quickly; but that in many of these same operations, which can not be so expedited and at the same time properly performed, other anesthetics, as ether or chloroform, must be resorted to.

Dr. Martindale—My knowledge of the use of nitrous oxid has been limited to the observation of 100 cases in the Central Hospital of London. My personal use of nitrous oxid is limited to the external auditory canal and peritonsillar abscess. My adenoid operation requires more time. Dr. Mackenzie has published his impressions as to the use of cocain in the nasal passages in connection with general narcosis. Since then it has been alluded to by Dr. Cohen and others. I have found it a valuable adjunct, and several of my colleagues in Minneapolis have found it useful. I would not undertake an extensive operation on the naso-pharynx without first spraying it with a solution of cocain. The use of the general anesthetic is attended with less danger.

Dr. Roe—Cocain does not seem sufficient to take away the pain. Bromid of ethyl makes the patient half unconscious, so that he is conscious of the operation but feels no pain.

Dr. Scheppegrell—I would use bromid of ethyl where an operation can be done in a short time, as there is comparatively less danger in a shorter anesthesia. If I can not complete the operation with the short anesthetic, I give chloroform. Some nine months ago I substituted eucain for cocain. I have used bromid of ethyl for four or five years in all cases of short anesthesia, without bad effects. Everything should be ready beforehand in these operations. Where children are old enough to have the gag placed in the mouth without exciting them, it should be done beforehand. If this is not possible, give the anesthetic to a slight extent, then apply the gag and complete the operation. I oppose prolonging the anesthesia to operate on both tonsils and adenoids. I have operated in this way on a patient over 18 years old, and have seen severe hemorrhage. In case we have this complication we should limit ourselves to either the adenoids or the tonsils. In using bromid of ethyl it is important to get pure preparations. In one case a druggist sent me nitrite of amyl. I have nothing to say against nitrous oxid except that it requires such complicated apparatus. Unless some good reason can be found against bromid of ethyl, I prefer to use it if the pure article can be obtained. I know of no fatal results.

I think the difficulties of operating in the sitting position have been rather exaggerated. I always operate in that position, with an assistant holding the head of the patient well forward. The advantages over the Trendelenburg position are marked, because the patient sits in front of you, and the relation of the parts is better maintained.

It would be impossible for me to do adenoid operations in forty-five to sixty seconds. I think many of us would require a longer time than was mentioned in the paper.

Dr. Bliss—I say emphatically that adenoid operations on children ought to be done under general anesthesia. In Europe and in many parts of this country it is done without anesthesia, but I consider this almost cruelty. If you do not complete the removal at one operation, you will not induce the child to submit a second time. We may remove adenoid vegetations in a child under 1½ years old without anesthesia, because the nervous system is not so highly developed, and the child will not remember so well. For general anesthesia in children I prefer chloroform. It is just as safe as ether and more agreeable. Since bromid of ethyl and nitrous oxid have been used, I have tried them in a number of cases. One objection is that we never know exactly when the right moment has come to operate. In some cases when the arm drops there is sufficient anesthesia, but in others there is not. Also you have to introduce the gag before operation. With a timid child the preparations beforehand will make him dread the operation. The reflexes are not abolished and the child may scream. An operation under general anesthesia should be done either in a hospital or at the house of the patient, and not in the office.

As to the nitrous oxid, I operated some years ago on a dental student who had hypertrophy of the turbinal. I did it in the anesthetizing room at the dental college. I was surprised to see how easily it could be done, and I was also alarmed at the almost carelessness with which the dental surgeons produced a case of cyanosis. In the fifteen or sixteen cases in which I have used nitrous oxid, it was given by a dentist. The patient has the disadvantage of seeing the preparations beforehand, and unless he has fortitude he gets frightened. General anesthesia should always be used in adenoid operations, and the method is largely a matter of choice. I think that chloroform with the addition of 5 per cent. of oxygen will be of value.

Dr. Myles—The shock of giving a child ether I think is as great as that of doing an operation. In regard to the operation, we may make an actual diagram and topographical description of the disease, then line out as much as nature intended us to have of the tonsils. If you operate on children who have fairly good tonsils, you will have very little trouble. If you pass your finger up into the posterior nares and tonsils and the child has adenoid growths, you will also find large hypertrophy of the lingual tonsil and fauces. But to run a curette up there and remove all this tissue takes ten or fifteen minutes. One firm sweep upward and backward will remove a larger amount than you can get by any other process. The instrument must be suited to the case, and must be of proper size and properly sharpened, so that it will engage the tissue and not bounce over it. I do not think it right to subject the child to an anesthetic, especially to ether when the work can be done without it. We should use the simpler methods.

Dr. Stucky—I am opposed to general anesthesia in operations for adenoids except in very rare cases. There is more shock in giving the child an anesthetic than there is in the operation. Make an application of cocain and then place a sheet around the child, fastening it behind and before, and slip in the mouth gag. After that there will be no more resistance or screaming and you can perform the operation thoroughly and with less shock. Keep the patient quiet for several hours after operation.

Dr. Merrick—I think there is more danger of hemorrhage with general anesthesia. I operated on a child four years old, and curetted under cocain. There was bleeding from 12 that day until 12 at night. If I had used a general anesthetic I think the child would have died. I have operated in about 100 cases and have used nitrous oxid gas in two and chloroform in one. A very severe hemorrhage followed the use of the anesthetic. I investigated the proceedings of laryngologic bodies for one year. I found five cases of death from tonsillotomy. I did not find a single case where fatal hemorrhage occurred except where a general anesthetic was used. Meyer used no general anesthetic. In my clinic I never think of using one. I have a grooved table upon which the patient is held by an assistant and the operation is completed in one minute. The child may cry. Two minutes after the child is released it is all right. Only in very extensive cases is a general anesthetic justifiable. You can do these operations, certainly in 95 per cent. of cases, without any risk except that of hemorrhage.

Dr. Bliss—I have just left a little patient, five years old, whose throat I have curetted without any anesthetic whatever. He was just as fond of me as though I had not done it. A great deal that is said on this subject is overdrawn.

Much of this adenoid tissue is absolutely physiologic, and the line of demarcation must be drawn with great caution. In the younger cases we can hardly use the visual exploration with any satisfaction. Digital exploration is almost a necessity. In the matter of curettement, the finger is far better than any other instrument. We have the pulp of the finger as a protection and can squeeze out the adenoid tissue with a minimum of bleeding and danger. If a large mass is to be removed, we can do it in nine cases out of ten without an anesthetic. Where we have a large operation to do we must have a general anesthetic, and in Philadelphia this will usually be ether.

Dr. Mackenzie—Unless indications are strongly to the contrary, and unless the child is rebellious, I prefer to operate on adenoid growths without an anesthetic. It takes longer, but I make a more complete operation. It is sometimes necessary to prevent recurrence, to employ vigorous curettement. If so I sometimes resort to an anesthetic, generally to bromid of ethyl. If a general anesthetic is to be administered to children, I prefer to give chloroform first until comparative quiet is secured, and then keep up the narcosis with ether. I have used bromid of ethyl in these cases for years, and have never had an accident. The drug must be pure, however. It can now be obtained in hermetically sealed tubes. Care must be taken also to exclude the air. If these precautions be taken I think it is perfectly safe. As to the removal of adenoid growths and both tonsils in forty-five to sixty seconds, in my hands the operation would not be complete. It seems to me absolutely impossible in a very short time to reach every nook and cranny of the naso-pharynx and to be sure that the extirpation is complete.

Dr. Martindale—As to using ether in the upright position, I have seen one death from a dentist using ether in his dental chair, and that is enough to deter me from using it in that way. I have used nitrous oxid with very pleasant results. After one becomes accustomed to the alarming appearance of the patient I think there is no danger; and if Dr. Casselberry has added oxygen, which increases the narcosis and lessens the danger, this will be an ideal anesthetic. But the majority of cases which need an anesthetic should be placed under narcosis for a longer time than one minute.

Dr. Cobb—I will say a word in the defense of ether in the upright position. In the Massachusetts General Hospital, ether has been used. In the last eight years we averaged over four adenoid operations a week, and there has not been one death. I think that is fairly good evidence of the safety of ether.

Dr. Gibbons—I would call attention to the necessity for knowledge as to forced respiration, etc. A patient who does not recover from ether or chloroform does not die for some time. We should do something to restore animation, besides the ordinary traction of the tongue. A surgeon is criminally responsible if he has not a regular apparatus for this purpose, or at least a common pair of bellows. If he has a compressed air tank he can resort to that. He should certainly have oxygen. Forced respiration should be kept up for at least six hours. Life will sometimes come back after six hours when it will not after four or five. If you have nothing better, insert the compressed air tube and push it down into the trachea. You may find it convenient to do tracheotomy. At least 90 per cent. of adenoid growths can be removed without a general anesthetic. When a general anesthetic is needed I use chloroform and nitrous oxid.

Dr. Gibb—In Philadelphia we largely use ether. Our experience with bromid of ethyl has been such as to deter us from its use; but I think the bad results were largely due to the impurity of the drug. The same objection may be offered to nitrous oxid and bromid of ethyl, the short period of anesthesia. This is especially true if the combined operation for adenoids and hypertrophied tonsils is undertaken. There are many adenoids that it is not necessary to remove at all, and still others can be removed by so simple an operation that no anesthetic is needed. But in cases of large adenoid, I still believe that ether is the most desirable form of anesthetic. Nitrous oxid and bromid of ethyl give too short a time.

The Chairman—The only way of harmonizing the diversity of views is the natural one of making a proper selection of cases. No fixed line of treatment could be laid down for all cases even to the anesthetic preferred. There are adenoids which can not be removed in one, two or three minutes, and there are those which can, or at least which can be sufficiently removed for practical purposes. There are some cases where it is desirable to make the operation on the faucial tonsils and adenoids at different times, but usually it is best to do a combined operation. Complications may arise, but you would find no general surgeon willing to make two bites of a cherry on so small a surgical measure, especially if the operation be done under a general anesthetic. You can treat hemorrhage just as well in the case of a child under anesthesia as without.

Dr. Menge has taken an extreme position in saying that nitrous oxid with oxygen is absolutely free from danger, for that is true of no anesthetic; it is relatively free from danger. There is also slight asphyxia, even with the oxygen. It is only intended for institution and office use, where the apparatus can be kept in readiness. As to operating without anesthesia, in some children it can be done very well and in others it can not. As to the citation relative to dangerous hemorrhage with an anesthetic, I have elsewhere reported a fatal case from the practice of a friend following tonsillotomy without an anesthetic. The child swallowed the blood and the hemorrhage was not observed until too late. If there is hemorrhage you can stop it better with an anesthetic than without. With nitrous oxid the anesthesia is so brief that the patient would have to be re-anesthetized by other means in the emergency of a dangerous hemorrhage.

SOCIETY PROCEEDINGS.

The Quarantine Convention of the South Atlantic and Gulf States.

(*Concluded from page 490.*)

FEBRUARY 11—MORNING SESSION.

The convention was called to order at 10 o'clock and the Chair announced that the order of business would be the discussion of the papers on "National Quarantine" and "A National Bureau of Health" (*vide* JOURNAL, February 26, p. 490).

It was ordered that the discussion of the report of the Committee on Resolutions, when made, be coupled with the discussion of the papers.

The report of the special committee on the resolution introduced by Dr. John B. Hamilton, relative to dangerous infected ports, to provide for the maintenance of a medical force at those ports and the calling of an international quarantine conference, was read. The report favored the adoption of the resolution and the drafting of a memorial to Congress to give it effect, and was unanimously adopted.

NATIONAL QUARANTINE.

The following is an abstract of the paper read on Thursday by Dr. H. B. HORLBECK, health officer of Charleston, S. C., and ex president of the American Public Health Association.

The subject of National quarantine is a function affecting the vital interests of the entire Nation, and it is a task which has its peculiar character, viz., the protection of the different States and municipalities, with the privilege of self-government in those States and municipalities unimperiled.

It would appear that this condition is the pivotal point in the adjudication of National quarantine: To have furnished the fullest and amplest assistance and co-operation by the Nation and to permit intelligent and willing work by the State and municipality. The privilege of our self-control in these matters is the very foundation stone of our civilization, and the abrogation of the power of a municipality to be the final arbiter in her government of her health interest would be the destruction of a right which carries with it the most sacred duties pertaining to a congregation of human beings established under the constitution of the United States. *Salus populi suprema est lex* The health of the people is supreme law, and should be the most absolute right of every municipality.

We therefore, in adding our modicum to "National quarantine," must above all interests have this sacred right and privilege carefully considered, and we say advisedly "considered." It is not our desire to have these privileges so absolute that an improper or inefficient fulfillment of such duties should not be a matter for adjudication. The rights and privileges of the municipalities being established, we are prepared for discussion of the relation of National influences in these matters.

The governing body who may have the control and guidance of National quarantine should ever be on the alert to have such general laws of quarantine as may be passed and of force carried into effect. We say general laws, and it is idle in addressing so intelligent and well informed a body to designate such laws which affect the general health of all collected bodies of human beings. Such laws should ever be of force, and as we understand the situation such federal laws are now and have been of force since the act of Feb. 15, 1893, and they are now dominant. All communities who are recreant to their sacred rights and privileges, should at once be brought to a realization of their shortcomings by the controllers of the National laws.

As I am a life-long resident in a sea-coast city, it is but natural that I should more particularly address you in reference to the requirements of the quarantine of such a city in its relation to National proceedings. As Charleston is affected by National quarantine, so are affected the cities of the South Atlantic and Gulf coasts of the United States. The diseases incident to one are incident to all, and the proceedings for the protection of health and for the non-injury to commerce are the same.

There is something new in the situation that is the threatened additional powers that are embodied in Senator Caffery's bill, known as Senate Bill No. 2680, additional powers to be given to the Federal Government, practically under the control of the Marine-Hospital Service.

This concise and forcible bill of less than two hundred lines sweeps away all privilege of State or municipality of making any laws as to quarantine, and vests this duty in the nominal hands of the Secretary of the Treasury, as it is a matter of fact that this department of the treasury is under the Supervising Surgeon General of the Marine-Hospital Service. They are simple words, these commencing lines of Senate Bill 2680, but they are ruthless as to any further privilege of the governmental bodies thinking what may be best for the interests of a State containing a seaport city.

The act of Feb. 15, 1893, entitled, "An act granting additional quarantine powers and imposing additional duties upon the Marine-Hospital Service," is destroyed. In the very initial sentence this bill, No. 2680, condemns all privileges of cities judging for themselves or enacting laws for their procedure, and says of the act of Feb. 15, 1893, that it shall be amended by striking out the following words in Section 1: "And with such rules and regulations of State and municipal health authorities as may be made in pursuance of or consistent with this act."

The rules and regulations deemed wise and efficient, and made at the suggestion of State or municipal boards of health, are swept out of existence, and the Secretary of the Treasury "shall make such rules and regulations as are necessary to prevent the introduction into the United States of any infectious or contagious disease from any foreign port or place, or the spread of such diseases from one domestic port to another," etc., ... "to be enforced by consular quarantine and custome offices of the United States, and the State and local quarantine officers of the United States" . . "with the proviso that they shall not discriminate against any port or place." The laws are to be made by the Secretary of the Treasury and practically carried out under the power of the Supervising Surgeon General of the National hospital service. Was there ever a law made that was not open to differences of opinion as to its meaning? The State Board of Health of Louisiana were for years trying to enforce their laws as to the collection of dues contracted for quarantine procedures. Is it to be the privilege of the Marine-Hospital Service to take the place of the supreme court of the United States? Who is to adjudicate the proper charges of quarantine procedure, are the same charges to be made in a port of a dozen entries in a year with ports having thousands of vessels entering their harbors, like New York, Boston, Philadelphia or New Orleans? All such matters should surely be in the hands of the ports interested.

On page 3 we find that when the Secretary of the Treasury shall deem it necessary, etc., incoming vessels shall be inspected by a National quarantine officer designated or appointed by the Secretary of the Treasury on recommendation of the Surgeon General of the Marine-Hospital Service, and such vessel can not be admitted to entry without the certificates of said officer that the United States quarantine regulations have been complied with.

The quarantine laws for the great cities of the United States are to be made (practically) by the Marine-Hospital Service, and if not satisfactorily carried out in the opinion of that service, an officer is to be sent, recommended by them, to forbid entry as they see proper. Was ever such power granted? Is it the meaning of this bill that every port must yield to this overwhelming power, and pass over their cities to the Marine-Hospital Service for quarantine government?

On page 6, line 25 says whenever yellow fever, cholera, plague or typhus has passed the quarantines of the United States . . . the quarantine regulations of the United States, prepared under the direction of the Secretary of the Treasury, shall be supreme and have precedence of State or municipal laws, rules or regulations, and the President is authorized to enforce the same."

On page 6, lines 14 and 15, we find, "and to prevent unnecessary restrictions upon interstate commerce." Any person violating a prohibition or a permit from the Federal authorities shall be deemed guilty of misdemeanor and shall be subject to a fine of not more than $1000 or imprisonment for not more than twelve months, or both, at the discretion of the court.

This is the *summum malum*. Therefore, any health officer who shall disregard a permit which he regards dangerous to his community, shall wear stripes in a common prison or penitentiary and pay a fine which may beggar him.

There are two quarantines, one in the interests of health and one in the interests of commerce. The quarantine interests of health and of commerce are ever at variance. It must be so.

The laws governing success in commerce are inexorable. To forbid entrance to or from a city for merchandise means a stagnation which carries with it while it lasts loss to commerce, and so we are able to have this bill to prevent unnecessary restrictions upon interstate commerce. To have the *ipse dixit* or advertisement from any person representing a National service that perfect disinfection has been carried out only should convey with it the fact that it is so stated. The privilege of recognizing whether such procedures are believed to be effective and of avail should belong to the community to whom it is desired to consign such shipment. Are the causes and methods of prevention of yellow fever so well known that we can definitely say this person is harmless, and that package will cause no peril? We believe we can say so with certain procedures thoroughly carried out, but are such procedures possible when the commerce of a great city becomes a factor? We believe not, and with every disposition and inclination to fulfil such requirements we believe the Federal Government has not yet reached a position to perfectly disinfect great train loads of men or merchandise.

We have tried to discuss the bill of Mr. Caffery with all fairness, as it affects National quarantine. We believe it to be a most pernicious bill, wrong in spirit and wrong in letter. The act of Feb. 15, 1893, is, in our opinion, wholly sufficient for our present requirements; it is full as to foreign requirements, and it says as to local procedures:

"Section 3. That the supervising Surgeon-General of the Marine-Hospital Service shall, immediately after this act takes effect, examine the quarantine regulations of all State and municipal boards of health, and shall, under the direction of the Secretary of the Treasury, co-operate with and aid State and municipal boards of health in the execution and enforcement of the rules and regulations made by the Secretary of the Treasury to prevent the introduction of contagious or infectious diseases into the United States from foreign countries, and into one State or Territory or the District of Columbia from another State or Territory or the District of Columbia; and all rules and regulations made by the Secretary of the Treasury shall operate uniformly and in no manner discriminate against any port or place; and at such ports and places within the United States as have no quarantine regulations under State or municipal authority, where such regulations are, in the opinion of the Secretary of the Treasury, necessary to prevent the introduction of contagious or infectious diseases into the United States from foreign countries, or into one State or Territory or the District of Columbia, and at such ports and places within the United States where quarantine regulations exist under the authority of the State or municipality which, in the opinion of the Secretary of the Treasury, are not sufficient to prevent the introduction of such diseases into the United States, or into one State or Territory or the District of Columbia, the Secretary of the Treasury shall, if in h'e judgment it is necessary and proper, make such additional rules and regulations as are necessary to prevent the introduction of such diseases into the United States from foreign countries, or into one State or Territory or the District of Columbia, and when said rules and regulations have been made they shall be promulgated by the Secretary of the Treasury and enforced by the sanitary authorities of the States and municipalities, where the State or municipal health authorities will undertake to execute and enforce them; but if the State or municipal authorities shall fail or refuse to enforce said rules and regulations, the President shall execute and enforce the same and adopt such measures as, in his judgment, shall be necessary to prevent the introduction or spread of such disease, and may detail or appoint officers for that purpose."

We regard the protection of a city against the introduction of disease to be a privilege, a great right and a great duty, and we protest against the assumption of such rights, privileges and duties by any branch of National service. It is our conviction that the State and municipal authorities should be built up, not torn down and made subservient. These health authorities should be encouraged in every way to feel their responsibilities, and should be encouraged to take a quick and lively interest in all matters pertaining to the health of the Republic, and they should be encouraged to feel their responsibilities, and as long as they indicate by their labors that they are striving for the public good they should be given the fullest opportunity of carrying out the health laws as they are understood by competent sanitarians. The duties of the Marine-Hospital Service are now vast enough to satisfy the ambition and desires of any body of men. Under the laws they must co-operate with, not entirely supersede.

Such aid in all great epidemics and emergencies as they may give should be actively, generously and thoroughly bestowed. Such a field, although not limitless, is vast, and in it the Marine-Hospital Service may find ample room for honorable service. We re-echo the sentiment that National quarantine should be co-operative, not autocratic.

The discussion on the papers above referred to was opened by Dr. John B. Hamilton of Chicago, who spoke on the subject of "A National Bureau of Health." He spoke of a bill drafted by the AMERICAN MEDICAL ASSOCIATION relative to the establishment of such a bureau and asked the endorsement of that bill by the convention. He said the bill had been drafted for the benefit of the whole country. He read extracts from the provisions of the proposed bill and explained those provisions. He said he would take naught from the powers of the Marine-Hospital Service, and in the bill providing for a commission of public health it was intended that the Marine-Hospital Service should be the executive arm of the proposed commission. This bill, while giving National authority, provided for full co operation by State authorities.

Hon. JOHN E. GRADY of Appalachicola followed. He said that for a long time he had been of the opinion that all matters of quarantine should be under control of the federal government. He said that those States bordering on the Gulf or Atlantic are not the only ones interested in the matter of quarantine, and spoke of the difficulty of explaining to a Norwegian shipmaster the differences of the quarantine regulations of the various ports, and said that the correction for these differences lies in uniformity of quarantine laws. Such uniformity will put each port on an equal footing.

MAJORITY REPORT—COMMITTEE ON RESOLUTIONS.

Dr. HARALSON of Mississippi then read the following report: The Committee on Resolutions respectfully recommend the adoption of the following:

Resolved, That the Quarantine Convention of the South Atlantic and Gulf States invite the attention of the Congress of the United States to the Senate Bill No 2680, introduced by the Hon. Mr. Caffery, as not conducive of the sanitary interests of the country. The convention does not regard the bill as necessary or wise. The powers proposed to be conferred upon the Secretary of the Treasury are extreme and dangerous. We therefore respectfully urge that the said bill do not pass.

Resolved, That the Senate Bill No. 3433, a copy of which is transmitted herewith, introduced by the Hon. John C. Spooner, creating a commission of public health prepared by a committee of the AMERICAN MEDICAL ASSOCIATION, endorsed by the American Public Health Association, having the merit of covering the entire sanitary field and providing a uniform system of quarantine of the Federal Government with the co-operation and advice of every State board of health in the Union, would, in the opinion of this convention, be wise and satisfactory. We therefore respectfully urge its passage.

The bill providing for the raising of a commission to study and investigate the disease of yellow fever, and providing for an appropriation and emoluments and expenses of that commission was endorsed by the committee.

The resolution for a conference of the health authorities of the South Atlantic and Gulf States to formulate a code of quarantine rules and regulations and promulgate the same was endorsed by the majority and its adoption recommended.

[Signed]—H. B. Horlbeck, B. Smith, J. L. Ludlow, U. O. B. Wingate, J. L. Horsey, J. M. Holloway, S. A. Robinson, J. F. McShane, A. R. Reynolds, J. C. Egan, H. H. Haralson.

Col. W. E. KAY of Georgia then read a minority report signed by himself and Capt. J. M. Falkner, and moved its substitution for so much of the majority report as refers to the Caffery bill:

MINORITY REPORT OF THE COMMITTEE ON RESOLUTIONS.

Mr. President, we beg to report the following resolution, which we ask to be substituted for the majority report of the Committee on Resolutions:

Resolved, That it is the sense of this convention that the Congress of the United States should immediately enact such legislation as will result in the establishment of a National uniform system of quarantine, relating to the regulation of commerce with foreign nations between the several States, with due regard to the rights of the various States.

Resolved, further, That it is not the purpose of this convention to endorse any plan or criticise any legislation now proposed, but simply to place on record its belief in the necessity for uniformity of such enforcement as is only possible under National supervision, leaving the plan and details to our Representatives in Congress.

[Signed]—W. E. Kay, Georgia; J. M. Falkner, Oklahoma.

Hon. R. H. CLARKE of Mobile then offered the following substitute for both reports:

CLARKE'S SUBSTITUTE.

Resolved, That it is the sense of this convention that Congress should enact laws to provide for an efficient maritime quarantine, to be uniform and impartial in its application to the different commercial ports of this country, so as to give no one or more of them undue commercial advantage over the others, leaving to the States to prescribe and enforce additional reasonable safeguards of the health of their communities, provided that such State action shall not unreasonably obstruct commerce.

2. That Congress should aid the several States in establishing and maintaining uniform reasonable and efficient quarantine laws for regulating interstate commerce, leaving to each State adequate power to protect, as it shall deem best, the lives and health of its people.

3. That Congress should leave exclusively to the States the regulation of their internal commerce, and the provision of such quarantine or sanitary laws and regulations as they may deem advisable to that end.

4. That, in the framing of quarantine laws and regulations, and their enforcement, Congress should avail itself of the learning, experience and ability of the medical profession in the fullest measure possible.

Hon. Edgar H. Farrar of New Orleans moved the reports be divided and that the last two resolutions as to the appointment of a commission to investigate yellow fever and as to the conference of the States be taken up first; adopted.

That portion of the report relative to a yellow fever commission was adopted without dissent.

That portion of the report relative to a conference between the South Atlantic and Gulf States, to formulate a code of quarantine regulations, was then placed before the convention.

Dr. M. Cunningham of Birmingham moved its adoption.

There was some discussion as to the limit to be placed on the debate on the reports of the Committee on Resolutions.

On motion of Mr. John B. Knox of Anniston, after accepting amendments by Colonel W. E. Kay of Georgia, the leaders of the minority and majority reports and substitute were allowed twenty minutes and all others ten minutes, the debate to close at 3 o'clock.

Asked about the provision for the conference of the States, the chairman declared that it had been adopted.

The question then came up on the substitute offered by Hon. R. H. Clarke. He said the question is whether the convention should condemn the Caffery bill and endorse the Spooner bill. He said he had received an official copy of the Caffery bill and the Senate Committee's report, only one member of whom dissents from the recommendation that the substitute for the Caffery bill pass, and condemning the Spooner bill. He said the convention knew the influence of a committee report and if the majority report is adopted it will virtually say to the Senate Committee "you must reverse your action." We are an advisory body and we should not be too dictatorial, and we ought to avoid putting ourselves in the attitude the adoption of that majority report will place us. The Senate Committee has given more careful attention to those two bills than the members of this convention. He continued his argument against the condemnation of the Caffery bill, and said that he supposed the majority report condemned the original Caffery bill, every word, line and punctuation mark of which after the enacting clause, had been stricken out. The original Caffery bill had been condemned by the Senate Committee.

Professor Shands of Oxford, Miss., objected to the reservation of time by the leader of the minority report.

The convention voted that the twenty minutes applied at the beginning of the debate.

Colonel Kay then took the floor in support of the minority report. He inveighed against the acceptance of the Spooner bill as a *sine qua non*, and said that its adoption would wipe out the rights of the States in the matters of local quarantine. He said the provisions for a conference with State boards of health by the commission would be impossible of fulfilment. The vote of the Health officer of Maine, where there was never a case of yellow fever, would have the same weight as the vote of the Health Officer of Louisiana, and the adoption of the Spooner bill would be a very unwise step.

Dr. H. B. Horlbeck of Charleston then took the floor in support of the majority report. He said the Caffery bill was condemned because it is autocratic. The Committee had two bills before it, and carefully considered both the original and the amended bill for three hours. He claimed that it sweeps out the rights of the States to manage their own quarantines. It sweeps out the last atom of power that any State may have, and gives the Federal Government absolute control and says the law shall be supreme, and those who do not obey its mandates shall be amenable to a fine. Can a gentleman sitting in Washington manage our quarantines. If I thought the Spooner bill had any such conditions I would vote against it right here on this floor. I am a health officer and my duty is to protect life, and I have nothing to do with commerce. The lives of the people are paramount to business. He characterized the Caffery bill as iniquitous. He endorsed the Spooner bill as earnestly as he condemned the Caffery bill, and discussed the provisions of that bill at length.

Dr. Sanders moved that Nos. 32 and 33 be the special order for the evening session; adopted. These numbers are: "Epidemics and Quarantine from a Religious Standpoint," by Rev. H. C. Semple of New Orleans, and "Epidemics and Quarantine from the Ethical and Humane Points of View," by Rev. George B. Eager, D.D., of Montgomery.

After a discussion, participated in by Dr. Waldauer of Mississippi, Dr. Kohnke of New Orleans, Edgar H. Farrar of New Orleans, John B. Knox of Alabama, the resolution was passed under a suspension of the rules.

The discussion on the report of the Resolutions Committee was resumed, and Hon. E. L. Russell took the floor in support of Mr. Clarke's substitute.

Hon. F. C. Zacharie of New Orleans offered an amendment to the first section of Mr. Clarke's substitute, for the purpose of making it clearer, the amendment not altering the sense of the section. He then advocated the adoption of the substitute of Mr. Clarke, and at the conclusion of his remarks the convention took a recess.

Afternoon Session.

Hon. R. H. Clarke's amended substitute adopted.

Mr. Norman Walker of New Orleans introduced a resolution providing for the holding of the proposed quarantine conference provided for by the convention at Atlanta, in the week beginning April 25. An amendment fixing the date the first Tuesday in April was accepted by the mover. The motion was then adopted.

Hon. R. H. Clarke then asked leave to withdraw his substitute and to substitute therefor another substitute. This request was adopted by the convention.

Colonel Kay then withdrew the minority report.

Dr. Horlbeck withdrew the majority report and moved the substitute be adopted; carried amid applause.

The amended substitute is as follows:

Resolved, That it is the sense of this convention:

1. That Congress be requested to provide for a department of public health as soon as practicable.

2. That it is the sense of this convention that Congress should enact laws to provide for an efficient maritime quarantine, to be uniform and impartial in its application to the different commercial ports of this country, so as to give no one or more of them undue commercial advantage over the others, and to be enforced by the several State and municipal quarantine or health boards, if they will undertake so to do, leaving also to the States the power to prescribe and enforce additional reasonable safeguards of the health of their communities, provided that such State action shall not unreasonably obstruct commerce.

3. That Congress should aid the several States in establishing and maintaining uniform, reasonable and efficient quarantine laws for affecting, but not regulating interstate commerce, leaving to each State adequate power to protect as it shall deem best the lives and health of its people.

4. That Congress should leave exclusively to the States the regulation of their purely internal commerce and the provision of such quarantine and sanitary laws and regulations as they may deem advisable to that end.

5. That in the framing of quarantine laws and regulations and in their enforcement Congress should avail itself of the learning, experience and ability of the medical profession in the fullest measure possible, and especially by way of an advisory council.

Dr. Kohnke of New Orleans offered a preamble and resolutions as to popular education in hygiene, endorsing the purposes of the Louisiana State Sanitary Association, and recommending the establishment of similar sanitary associations, was adopted by the convention.

Mr. R. J. Lowe objected to the resolution and made the point of order that the resolution should go to the committee, but was overruled.

Dr. S. R. Oliphant, ex president of the State Board of Health of Louisiana, then read a paper on

SANITARY INSPECTORS OF FOREIGN PORTS; WHAT IS BEING DONE AND WHAT CAN BE DONE IN THIS DIRECTION.

The Doctor outlined the use of inspectors in fruit ports and in other foreign ports on the lookout for cholera, yellow fever and other infectious or contagious diseases. He outlined the duties of the inspectors in his opinion and said they should deal in facts first and in opinions afterward. He said the quarantine officer should never pass through his lines a shipment he would not receive in his own city. He spoke of the great benefits that had already accrued by reason of a system of medical inspectors.

Mr. ZACHARIE moved that copies of the resolutions adopted by this convention be forwarded to Congress, which was adopted.

A collection was taken up to defray the incidental expenses of sending out circulars and the chair guaranteed to raise by subscription the amount necessary to print the proceedings of the convention, amounting to $63,35.

Hon. D. M. TAYLOR of Mississippi offered a resolution that each of the Spanish-American countries be invited to send one delegate to Atlanta, with a view of having a co-operative international quarantine system; adopted.

Dr. H. H. HARALSON of Biloxi then read a paper on "Medical Inspectors of Coast Towns and Cities, How Best to Provide For."

The Chair appointed the following Committee of Arrangements for the Atlanta convention: Collier of Georgia, Moody of Alabama, Renshaw of Florida, Horlbeck of South Carolina, Ludlow of North Carolina, Smith of Texas, Formento of Louisiana, Griffin of Mississippi. On Publication: Dr. Moody, Hon. Leslie E. Brooke and Erwin Chaighead of Mobile.

Dr. P. E. ARCHINARD of New Orleans then read a paper on "Recent Discovery of a Method of Early Diagnosis of Yellow Fever."

Dr. QUITMAN KOHNKE of New Orleans then read a paper on "What Steps Should be Taken in Dealing with First Case or Cases of Infectious or Contagious Diseases that May Reach our Towns or Cities."

Dr. FELIX FORMENTO of New Orleans then read

THE POLICY OF DEPOPULATING CITIES INFECTED WITH YELLOW FEVER; IF UNDERTAKEN, HOW BEST TO ACCOMPLISH.

He said: *A priori* and on general principles, we would probably all be inclined to admit that the early depopulating of infected cities, if practicable, would be the best and most efficient means of stamping out an epidemic disease at its very birth, by removing the elements necessary to its development. A fire without fuel will soon die out, the disease would soon come to an end for want of subjects. But is such a policy possible? Can it be carried out? Even with the good will and active co-operation of all the citizens of a town or village, is such a general exodus practicable? How and where could we find the physical means, the financial resources necessary, indispensable for the carrying out of such a measure? Who would furnish both the means of escape and of subsistence to thousands of families, and for an indefinite period?

As to a compulsory depopulating, to a forced exodus, even in the smallest of our communities, such a course is not to be thought of, is absolutely impossible in a free country like ours. No authority on earth would have the power, still less the right, to enforce it. The population of the smallest and most insignificant hamlet has natural rights and privileges, which can not be interfered with. In this question, the presence of yellow fever is not the only factor to be considered. The innumerable and varied family, social and commercial interests of modern life can not be overlooked, sacrificed to fear, justifiable or not, of a disease, however dreadful it may be; their ruin would be more of a calamity than the disease itself. I can not here abstain from protesting in the strongest terms against the shameful and humiliating measures inspired by terror and panic which have been witnessed all around us during the last epidemic. These measures of self-protection were as worthless and unscientific as they were cruel and tyrannic. Remnants of the practices of the dark ages, they are unworthy of our age and civilization. I never could understand why our people, so brave, so reckless and indifferent to danger, ready to take all sorts of risks by land and water, should become so timid, so frightened, so demoralized in the presence of a few cases of yellow fever. That disease has the privilege of inspiring more terror than any other, many times more terrible and fatal. This sentiment of fear is degrading and a worse evil than the disease itself, as it tends to lower the moral sense of a whole people.

This terror is entirely unjustifiable. In fact, yellow fever has lost much of its violence since 1853. That year the death rate was enormous, 3 out of 4! In 1878, it was 1 in 5; in 1867 it was 1 in 20, and in 1897 it was about 1 in 200.

General depopulating of a city or town, however desirable from a theoretic point of view, is, I repeat, of impossible realization. It never could apply to a large city. Voluntary exodus, which implies the necessary means to accomplish it, of individuals and families should greatly be encouraged, especially at the very breaking-out of the disease. This depopulating is generally done at once, spontaneously, without waiting for the direction or control of health authorities.

During the existence of an epidemic no persons should be allowed to leave the infected locality for a healthy one, without taking proper sanitary precautions. These consist principally in permitting no baggage, but only scant wearing apparel, and in the thorough washing and disinfecting of the person himself.

Refugees should be brought to a camp of observation established in a convenient and healthy locality on the railroad outside of all contamination; there they would remain during the period of incubation; then a train from the town willing to receive them, and carrying clean, disinfected clothing, etc., would come to convey them to their destination. We could cite several instances in which, under similar precautions, the transfer was effected without any bad results.

There is a method of depopulating which is, perhaps, more productive of good than that of towns and villages. We refer to the early depopulating of the houses in which occur the very first cases of fever. This method applies to all infectious diseases and is the one followed in Germany for the immediate stamping-out of scarlet fever, typhus fever and other infectious diseases. To carry out successfully this plan, all necessary precautions should be taken in advance and be always in readiness, especially in those cities most exposed to infection. Special hospitals for the treatment of yellow fever, established in the outskirts of the town, should at all times be ready for the reception of patients, and camps of observation and isolation, one of the best measures instituted during the recent visitation, should also be fully prepared in advance. On the occurrence of the very first cases the sick should be removed to the hospital, and the well, living in the infected house, at once removed to the camp, and the house thoroughly disinfected. This is particularly urgent in crowded tenement houses and densely populated quarters.

EVENING SESSION.

Rev. GEORGE B. EAGER, D.D., of Montgomery, read a paper on

EPIDEMICS AND QUARANTINE FROM THE ETHICAL AND HUMANE POINTS OF VIEW.

He said: This question of quarantine has its distinctly legal and commercial aspect, which none of us would minimize, and which business men are naturally inclined to think the all-important ones. It has also its international, National and State aspects, and then its sociologic, scientific and sanitary aspects.

Quarantine in our own country is conceded to be very complex, ineffectual and defective. We have had ample illustrations of this fact within late years. Under its operations and abuses we have been called to witness the most humiliating atavistic tendencies of human nature and society. Poor human nature has shown in many cases a most shocking reversion to type. In one way and another our people have been guilty of the most barbarous cruelties. These cruelties have been shown especially in the enforcement of defective, various and unscientific local systems of quarantine that exist in our Gulf States.

With human nature what it is, and society as it is, crude and undeveloped in many of its elements, with much of our civilization proving itself, under stress of fear and selfishness, but a veneering, certain excesses of tyrannies will crop out. There are evils that are incurable at the present stage of our development. "What can not be cured, of course must be endured." But are there not many of the inconsistencies and inhumanities of the existing quarantine system that might be remedied? If so, all principles of justice, right and humanity call on us to address ourselves to this problem with all earnestness and unselfishness.

Admitting all that can justly be said on municipal and State rights and on the legal aspects of quarantine, one fact stands out, the recent conduct of quarantine affairs by local authorities was a scandal and a disgrace to civilization! The dread name of the disease alone seemed sufficient to terrorize the majority of our people and lead to the most brutal encroachment on inherent human rights, to the violation of nearly every law of the decalogue and to unreasonable and inhuman interferences with travel, transportation and trade. As a result of this contagious demoralization, not only was business absolutely paralyzed, but the States of Alabama, Mississippi, Louisiana and Texas, as we all know were almost wholly given over to terror and anarchy, masquerading under the name of "local" quarantine.

Let it be granted that the function of quarantine has to do with health matters, that it is the protection of the public from an invading disease, that this is primarily the duty of the State; my contention is that all considerations of humanity require that its enforcement should be as free from complications, delays and harsh exactions as is compatible with efficiency, and that the expense to commerce should be reduced to a minimum. That a pest-ship, for instance, should be obliged to go out of its course a hundred miles or more to be disinfected, is a sufficient evil in itself; but that the sick, often without medical care, and the well, in constant danger of infection, should be penned up in the same vessel, perhaps for several days, is barbarous.

A system of quarantine that is just and humane, at the same time that it is efficient, should not only remove the sick to a hospital, but should provide means for comfortably caring for the well who have been exposed to infection, and should possess the necessary authority, force and apparatus for the speedy disinfection of vessels, baggage, merchandise and clothing.

In conclusion, if the abuses and cruelties and excesses complained of and all ideas can be checked, or in any degree cured, by the establishment of an improved and well adjusted National quarantine system, or by an enlargement of the scope, force and equipment of the Marine Hospital Service, then all principles of justice and humanity require that we should subordinate our local preferences, our too narrow or sentimental ideas of State rights, and our personal ambitions for position or greed for revenue, to the greater interests of the greater number.

Dr. **Charles A. Mohr** of Mobile then read a paper on "Agents and Methods of Disinfecting Houses, Cars, Freights, Baggage, etc., and the Classification of Freights as to their Liability of Conveying Infection." Dr. James M. Holloway of Louisville, on "To What Places may Refugees from Localities Infected with Yellow Fever Go, and how Should they be Managed and Cared For." Dr. Warren E. Anderson of Pensacola, a paper on "Quarantinable Diseases—What they Are and How they should be Dealt With." Dr. George A. Ketchum of Mobile, on "What may be done to Check the Spread of and to Exterminate Yellow Fever after it has Become Prevalent in a City." Surgeon R. D. Murray submitted a paper without reading on "Camps of Refuge and Detention." Dr. Maxime Landry of New Orleans, read a paper on "The Experiences of a Quarantine Officer in the Recent Epidemic."

Dr. **Sanders** rose to a question of personal privilege and took occasion to vehemently deny the charge of making an effort to pack this convention with men against National quarantine. He said he sent the paper that originated the charge a 200-word telegram and a letter, which if they had been published would have swept away the charge. Another was the intimation that he had selected a large number of lawyers all on the same side of the question, which he denied, saying that he was entirely ignorant of what side any lawyer would take until he heard them address the convention. He said he appreciated the resolution adopted thanking him for his efforts in getting up the convention, but he feels under no obligations to the presiding officer for courtesies extended during the convention, as he had disassociated him from any part in shaping the policy of the convention.

The convention then adjourned *sine die*.

New Jersey State Sanitary Association.

(Continued from page 493.)

On Saturday the chief paper was

PASSAIC VALLEY DRAINAGE,

by W. T. **Hunt** of Newark, a son of the late secretary of the State Board of Health. The Passaic Valley has long been a source of trouble owing to the great need of some means of drainage for the number of towns which occupy its fertile plains. Many of these are large and important. All have long been urging some relief for the great foulness of the river owing to the escape into it of the sewage of these places, not only destroying the value of the water for drinking, but in many instances causing disease by the foul odors given off in its course. Hence after many efforts the legislature, in 1896, appointed a commission to consider the subject of its pollution and of a general system of sewage-disposal for its relief. Ten thousand dollars were appropriated for the purpose. The report of the Commission is one of great value, well prepared with maps and charts to show the true condition and the plans proposed for its improvement. Mr. Hunt was one of the Commissioners. He said: Passaic Valley sewerage is distinctively a sanitary measure and commands the attention chiefly upon that basis. It is, however, complicated in its engineering, its financial and legal aspects, and it is embarrassed by the diversity of interests affected, the antagonisms all such general measures arouse, and the imperfect knowledge with which the subject must be approached. But when it has been established that this is a sanitary necessity the greatest step has been taken. For through the association of men such as constitute this body, through the individual labors of physician and engineer, and through the wise acceptance of new truths by courts and legislators, it has come to be recognized that sanitation has rights which give it precedence, and that the power which restrains crime and prevents contagion may also be asserted for public works which are necessary to health. If we may isolate the smallpox patient, we may also demand that a source of disease shall be removed; and the time is not distant when the public right to compel the private party to connect his house with a sewer will be followed by measures to require that communities should protect themselves by adequate sewerage systems. The right of self-destruction is no longer respected. The status of the movements for the relief of the polluted Passaic may be briefly mentioned. The commission reported to the legislature in February last, the Governor recommended prompt consideration and a joint committee was appointed to report upon the advisability of legislation at the next session. This committee has begun holding sessions in the cities interested, beginning with Bayonne. Let us look at the problem. The Passaic River becomes the Lower Passaic by going over a precipice at Paterson into the thickly settled district of a city of 100,000 people; its rapid flow is checked after a couple of miles by a dam at the city of Passaic where the sewage of 18,000 people is received: thence it is a tidal river receiving the sewage of Newark with 230,000 inhabitants, besides contributions from partially sewered towns in the distance between. In this drainage district there was a population of 436,423 in 1895, and the growth has since been rapid and gives every indication of continuing at a high ratio, since the facilities of travel have been largely increased. The estimate of the engineers of the Commission was that the population would be 1,458,000 in 1930, and those who have seen the strides made in the last five years will not challenge the figures. Now the Passaic has heretofore taken care of the sewage of this district more by absorption than by the weight and power of its seaward flow. The sewage of Paterson may almost be said not to have below Dundee dam at Passaic, the long stretch of sluggish stream at Dundee lake above the dam precipitating the solids by the mechanical process so generally used. From Passaic down the tide ebbs and flows, the volume of course depending upon the rainfall, but not developing into a continuous current at any time. We have not, therefore, a river which will carry away the deposit of sewage so as to scour its own banks and bottom. Its self purification, in short, depends chiefly upon there being sufficient dilution, and when the extreme limit of the water's absorbing capacity is reached we have a condition which is not so much that of an open sewer as of a cesspool. That the limit has been reached was demonstrated by the dry summer of 1895, and in that year, and at intervals during 1896 and 1897, when the rainfalls were interrupted, the recurrence of the cesspool features of the river was so immediate and so obvious that there could be no questioning the thorough establishment of the fact that the river has become incapable of assimilating additional sewage in its ordinary flow. The consequences are as inevitable as death.

Now, if we are right in assuming that the violation of the laws of health is something which must be checked as we would prevent crime or contagion, and that the Passaic river is an offence which imperils life and property, it seems obvious that creators of such condition should provide the means of removing it and that those who would share the benefit of the remedy should also share in the provision of it. The drainage district has heretofore carried its sewage to the river as a place of final deposit; that place having become dangerous, it is demanded that the rule which removes the cesspool from the city lot should apply to the cesspool which has been created by using the river as a place of sewage deposit. In planning to relieve the river, it was ascertained by the Commission that an arterial sewerage system extending from the Paterson Falls to Newark Bay, which would probably cost $6,500,000 and have a length of nearly twenty six miles, would accommodate the sewage flow of the population of the cities and towns of that drainage district. It was the compactness of the population which primarily led to the decision in favor of an arterial system. The collection, at one point, of the sewage of the towns and cities of the district was found to be necessary and it was believed that one great interceptor should perform the work for the whole district rather than that there should be several such to collect for parts of this concrete section. The decision was made less difficult by the failure to discover localities fitted for disposal of the sewage of Paterson and Passaic, and by the obstacles which would be encountered in using any place for such a purpose in a thickly settled district. The commission ers were driven toward an arterial system, with eventual sea disposal below the populated places in the drainage district, and that simplified their work.

Now as to the final disposal. We have a community of half a million souls dependent upon the open river for an outlet for their sewage, and find the river overburdened, depositing its solids as it sluggishly makes its way to the sea, and sending on the contaminated waters to reach the ocean before restored to their pristine purity. We propose the collection of the sewage into a sewer which will relieve the river of its foulness, and we point out that a large part of the work contemplated is a pressing necessity through the absence of local interceptors. We reach the salt meadows between Newark and Elizabeth, opposite Newark Bay, and there the collection work for the Passaic river proper may be said to end. The discharge as recommended by our engineers is to be made into Newark Bay. The engineers suggest a flume a mile and nine-tenths in length, extending from the interceptor's terminus in Newark Bay at Great Island to a point in the bay at deep water. There the discharge is proposed to be made, under such conditions as subsequent developments and investigations may make advisable. Should a nuisance be created there a further extension of the sewer to a point on the lower Bay of New York is recommended by the engineers, but it is believed by them that such danger would be small. We are, however, met by opposition to the discharge at this point from places located on the bay and below it, and from various sources. It has been claimed that the prospective contamination of the Bay only transfers the nuisance to a point lower down the river and that large interests would be injuriously affected. I am not prepared to enter just now into a full defense of this, but I do assert that so far as concerns the collection of the Passaic River drainage district and its conduct to the point indicated, it is a demonstrated necessity, and that the further disposition can be made at no other point so well. It may be further asserted that the practicability of discharging at outgoing tides; of precipitation previous to any discharge; and of the development of still newer methods of treatment before finally releasing the fluids for sea disposal, offers recourses sufficient to meet the objections that have thus far been raised. Should a further extension of the sewer to the larger bodies of water in New York Bay be required, there are other districts which would find the route the best available for them, and thus the cost of extension would be somewhat reduced. It should be mentioned that the island in the salt meadows, indicated in the report as the place of final collection, is comparatively remote from population, and is surrounded by marshes which would prove a barrier to growth in that direction.

It is also to be noted that a sewerage system for South Orange, which will eventually include other places, fixes the place of deposit at the outlet which the engineers of the Commission designated for the main sewer. It is then established that for the lower Passaic sewerage district it is necessary to construct an arterial or trunk-sewer collecting the sewage of the district from the cities and towns now having sewer systems or soon to construct them, and that such trunk system should end for the present at Newark Bay. This is found not only by affirmative fact but by the absence of interceptors in the cities, by the absence of suitable disposal grounds available near the cities and by the objections raised by large suburban population occupying territory which might be made available, as well as by the necessity of providing an outlet for the fluids after disposal and by the superior facilities of the meadows opposite Newark Bay for collecting purposes. Let the final discharge be into lower New York Bay or Newark Bay, and the necessity of conveying sewage to the point indicated remains unassailable. And for the capacity of Newark Bay to receive and dispose of the estimated flow of 70,000,000 gallons daily we have the estimates of our engineers. The desirability of using mechanical precipitation before such discharge has been carefully considered, and the convenience of access for boats to convey the sludge to sea if necessary, is a further advantage of the locality. The difficulties of land disposal in those sections have led to movements favorable to a great extension of the arterial systems.

There are parts of five counties and eighteen or twenty cities, towns and hamlets in the lower Passaic sewerage district. Each has its own interests, purposes and municipal ambitions, and each has much to do and little money to spend. The work is necessarily of a State nature, requiring a broader and higher authority than that granted any of the local branches of government. On the other hand, the constitution of the State denies to the legislature the authority to provide for the payment of such a costly undertaking by the necessary issue of bonds. It is required, therefore, that substantially a new method of exercising the powers of the government should be devised and to warrant such an innovation the necessity should be great. The imperative nature of the demand for the abatement of the Passaic nuisance has been demonstrated elsewhere, and the duty of the State to take action depends upon whether it be agreed by such students of sanitation as are now before us, that an injury to public health must be repaired not merely as a matter of policy but as a duty of government, similar to that of the prevention of crime and its punishment. Upon no other basis should we be willing to advocate measures which the limitations of constitution and existing forms of local government thrust upon the State for the correction of this and similar nuisances. The proposed law would briefly define that when a commission which has been duly appointed to consider the subject reports that any stream has been so befouled by sewage as to become a public nuisance and detrimental to health, the governor may appoint three able and discreet men with power to remedy the nuisance at once. The initiative is in the legislature so far as the preliminary examination is concerned. The governor acts, the commission proceeds with its task. It requires the selection of competent men and gives them very great powers in the raising and spending of money. The local authorities pay for the expense, but do not supervise the expenditures. The three commissioners are State officers, charged with a heavy responsibility, subject only to removal by the governor and to his scrutiny of their accounts. It is an exercise of power absolute, beyond the ordinary, and to which objection might justly be made if it were not founded upon that doctrine that sanitation is a higher law than that which controls the ordinary exercise of government in this State and country and justifies more pronounced measures.

It is the design of the statute as proposed, to meet other needs of the same kind in other parts of the State, and these may be expected in time. The sewerage problem is everywhere, in the remote farmhouse where the well may adjoin the cesspool and the dairy which supplies the city milk may be tainted; in the suburban community desirous of city improvement at a rural rate of expense; in the city struggling to make its sewerage system equal the needs of its rapid growth and requirements of health, on and up to the questions which are involving the collection of sewage from the different municipalities of some great drainage district where the means of local disposal are not available. In our State it compels attention by the evils resulting from its neglect, and we deem ourselves fortunate that the costly problem is pressed upon the State for a solution. These difficulties we find are being encountered all over the country, in other States: In Massachusetts, where action of momentous value has been taken; in Connecticut, where it is now under investigation—wherever there are great cities, narrow rivers being polluted, and an intelligent body of sanitarians to attack the evil. We find it in London, Manchester, Glasgow, countless centers of population grappling with it and guessing their way. There is no established rule, and no all wise sanitarian or engineer. Shall we follow the processes of nature? We find her too prodigal for our small means. Shall we imitate older civilizations? Our conditions are different, and our changes more rapid. We must work out our own salvation as best we may. This should be done by educating the masses through organizations like this. It must ever be borne in mind that there is never a complete and final solution of all difficulty, and crowded communities must be taught that the cost of removing the refuse of the cities bears a large ratio to the cost of supplying such communities. What goes into a community must emerge in some form, and if the transformation reduces it in bulk, it has also made it more difficult to care for safely and healthfully. Kindly critics often referred the Commission to similar problems abroad, and found much to instruct therein, but the work of London, Berlin, etc., is at its best only progressive and as far from perfect as any other branch of human progress. The tax-payers here naturally fear the great increase in the cost of living, but the sound bodies and clear heads which have through invention lightened labor, and so vastly increased the earnings of humanity, may be considered more than an offset for the requirements of the modern sanitation, which not only reduces the death rate but adds to the comfort and efficiency of the living. The Lower Passaic River runs its slow course through one of the fairest valleys in America with a population which it owes to its advantages for residential purposes, and its nearness to the great metropolis. Under healthful conditions the limit of the growth of population can scarcely be defined. Without sanitary provisions, it would be doomed. Education has not merely taught the people to correct bad conditions; it has warned them what to avoid. If the Lower Passaic River has become a nuisance to the public by contamination from sewerage, instead of the attractive and useful stream it was a few years ago, then it must be restored by removal of the wrong. A river which yields stenches which in the heated air of August sicken many and alarm all; from which the pollution has driven fish life; which has lost its charm as a public resort and the best of our parks; which is driving away population; which, in short, is assuming the conditions of a nuisance instead of a benefaction, compels remedial action. The legislature should act at once, and in time to prevent further injury to the large property interests involved. We can not trifle with such perils, we must regard the interests of the whole body of the people as superior to those of any individual or single community. The influence of this Sanitary Association will aid the project, not only for what would be accomplished for the Lower Passaic valley, but for the principles in government for the benefit of sanitation which a work of such a character would establish and perpetuate in our State.

(To be continued.)

SELECTIONS.

A Case of Tyrotoxicon Poisoning; the Bacteriology of Milk.—At Halifax, England, a case of ptomain poisoning, with a coroner's inquest, has occurred. It is commented upon as follows in the London *Lancet:* "Some interest attaches to an inquest recently held at Halifax on the body of a child, aged 4 years, who was put to bed on November 27, apparently in her usual health, but was taken ill about 7 o'clock the following morning and died in a few hours. A postmortem examination was made by the medical officer, who deposed that death was due to some poisoning the exact nature of which he was unable to specify. It was suggested that the girl might have sucked the coloring from a doll which she took to bed with her, but it was also further mentioned that she had partaken of some ice-cream which might have caused the symptoms. The coroner directed the borough analyst to make an analysis, and he expressed the opinion that the symptoms and postmortem examination pointed to poisoning by tyrotoxicon, a substance derived from unwholesome milk. He examined the ice-cream for tyrotoxicon but found none present. He gave some useful hints, however, that duly found their way into the press, namely, that this substance was destroyed by a temperature of 90 degrees C., and consequently if milk was boiled, should tyrotoxicon be present it would be destroyed. This adds another warning to the community at large against drinking milk that has not been boiled, and points the necessity that farmers and milk dealers should scald out the utensils in which they place milk."

We are reminded by the foregoing of a discussion of the milk supply question that recently took place in the Massachusetts Association of Boards of Health, in the course of which one of the speakers stated that in some places in Boston the milk storekeepers put rotten eggs, cheese, bad molasses and other refuse in the cans to be returned to the dairy. The practice of returning unclean cans and stoppers from the dealer to the producer was condemned. Before so returning them, the dealer should be required to see that they are thoroughly cleansed and sterilized by the use of steam or boiling water. "Inasmuch as milk is one of the best culture media for micro-organisms, and is always liable to become infected with the germs of disease, and further, inasmuch as the process of Pasteurization is known to destroy such organisms, it is recommended by a majority of the committee that, as far as possible, all milk be Pasteurized before it is sold."

In the course of this same discussion Dr. Sedgwick, the well-known bacteriologist of the Massachusetts State Board of Health, remarked that as for himself he now never drank a glass of raw milk. He advocates not only that all milk should be Pasteurized but that this should be done early. He said: "If you go and buy some milk that already has millions of bacteria in it, and a lot of dirt and all that, and Pasteurize that milk, you will undoubtedly have rather a hard time. Milk ought to be Pasteurized at the latest very soon after it is drawn from the cow, and then it would be much cleaner and better taken care of, and when it is treated in that way it is almost perfect. I really believe the time is coming when it will be regarded as *a very unusual and uncivilized thing to drink unpasteurized milk;* and I think, if I had brought in some Pasteurized milk and passed it around here, and said nothing about it, nine out of ten of those present would not have known but they were drinking ordinary sweet milk, that is, most people, having had no sweet milk in their lives, have got used to a commercially sweet milk, and when they get hold of sweet milk they think something is the matter with it. But anybody who has ever squirted milk into his mouth from the teat of a cow, as all boys have done who live in the country, knows that milk that has been Pasteurized tastes like that he used to get when he was a boy, practically normal milk. I believe in cities especially we have got to come to that sort of thing; and I believe that unless we do come to that, we shall see cholera infantum and epidemics of typhoid from milk. I really believe *if we could get Pasteurized milk into Boston today, and let nothing else go into the tenement-house districts, the number of cases of cholera infantum we should have would be too trifling to mention.* And the moral of all this is that boards of health will not be considered to have done their full duty in respect of the protection of the milk supply if they stop short at their usual chemic analysis.

"I believe that the time will come when every well regulated local board of health will have some one at its laboratory, I mean in every city of any size or large towns, who should make an examination of milk that is sold, not only in respect to the amount of water that it contains, that being probably the least damaging of all things, but in respect to dirt and its age or staleness, and that in such examinations counting the numbers of bacteria and determining the acidity will be of very great value." The remarks of Mr. Nathan Straus, the newly appointed president of the New York City Board of Health, may be put on record in this connection. He says: "There is practically no milk delivered for general consumption in cities that is fit to be fed in its natural state to young children. I think I have fairly demonstrated the proposition that many thousands of infants' lives are annually sacrificed by the neglect to supply for the nutriment of children milk which has been sterilized. I hold that neglect to be criminal." The ice has been broken. We may expect soon to hear that the multitudinous institutions throughout the country for the care of children, have found their account in the abandonment of raw or unpasteurized milk, unless it have the certificate of a bacteriologist.

Thyroid Medication in Diabetes.—The principal feature of thyroid medication is the acceleration of tissue nutrition with the habitual predominance of denutrition. To this is due its effect on obesity. It is accompanied occasionally by a slight glycosuria, amounting in Ewald's case to permanent diabetes. In Georgiewsky's experiments with dogs this glycosuria did not appear when the thyroid was administered in combination with a meat diet, but only when the dogs were fed with soups. He also states the fact that the days when there was sugar in the urine there were less unoxidated substances than on other days, showing that the glycosuria can not be attributed to any lack of oxidating energy. Von Noorden asserts that the internal secretion of the thyroid prevents the formation of fat at the expense of the sugar; in other words, it interferes with one of the mechanisms that regulate the glycohemia, which ingenious hypothesis deserves to be verified. This fact that thyroid medication and hyperthyroidization favor the production of glycosuria renders especially remarkable the case reported by Branthomme of an arthritic diabetic improved by the ingestion of thyroid tablets, until now, a year later, there is no sugar in the urine, and merely traces of albumin. Lépine comments upon this case, remarking that if diabetes results from deficient nutrition, then thyroid medication accelerating tissue nutrition would affect it favorably, similarly to the beneficial effect attained in diabetes by d'Arsonval and Charrin with high frequency currents. De Renzi and Reale, on the other hand, have noted glycosuria follow the use of these currents, showing again the analogy between them and thyroid medication. Both accelerate tissue nutrition and thus might improve a diabetic, but more frequently they are injurious, as they stimulate denutrition to such an extent. Lepine concludes by reporting the case of an obese diabetic he is treating with the thyroid medication. At first the sugar was increased, but in a few days it began to show a constant decrease. Intercurrent erysipelas interrupted the treatment, which he intends to resume later.—*Semaine Méd.*, December 22.

PRACTICAL NOTES.

Injections of Artificial Serum for feeble new-born infants have been found remarkably beneficial by Loviot.—*Presse Méd.*, January 22.

Powder for Varicose Ulcers of the Leg.—Finely pulverized sodium chlorid, 50 grams; pulverized menthol, 5 grams. Mix and pulverize (Simonelli, *Journ. de Med. de P.*, January 9).

For Stings of Insects.—Jacquet proposes the following: Naphthol 10 parts; menthol 1 part; ether q.s; petrolatum, q.s. to make 100 parts. Dissolve the naphthol in ether, add the menthol and finally incorporate the solution with the petrolatum. —*N. O. Med. and Surg. Jour.*

An Ointment for Pruritus.—The *Jour. de Med. de Paris* attributes the following formula to Coover: Yellow oxid of mercury, 1 part; vaselin, 200 parts. The ointment should be applied at bedtime, and also, if necessary, in the morning, by firm and prolonged friction, the affected parts having been previously washed with warm water and soap.

The Lithotomy Position in Partu.—O. Schmidt of Moscow recommends this position whenever the head is engaged in the pelvic cavity or outlet; as the labor pain ceases the feet are replaced on the bed. The increased intra-abdominal pressure and the enlarged pelvic outlet render the birth easier in this position, and it proceeds with remarkable rapidity.—*Cbl. f. Gyn.*, 1897, No. 47.

Gravity of Generalized Pruritus in Pregnancy.—Whenever there is general pruritus sufficient to cause insomnia, the subject is evidently affected with a serious auto-infection. In every case observed by Pinard and Lutaud the pregnancy was not normal; either the fetus died or there was eclampsia, or defective insertion of the placenta. The combination of bromid and chloral seems the best medication, although the immediate termination of the pregnancy has been suggested.—*Journ. de Méd. de P.*, January 16.

Girdle for Sea Sickness.—Galliano of Turin is now patenting a compressing girdle or belt which he claims has absolutely prevented sea sickness even in those most easily affected. It exerts a strong pressure on the gastric region from both front and rear, which has long been known to have a favorable effect in threatening sea sickness, although no special appliance for the purpose has ever been devised before.—*Gaz. d. Osp. e d. Clin.*, January 23.

Orthoform Anesthesia.—Orthoform does not produce anesthesia on sound skin or mucosa, only on open wounds. Hirschbruck recommends the injection of a 3 per cent. mixture of orthoform and water, with which he has obtained excellent results. He precedes it with 0.002 cocain mur. to prevent pain from the injection. The anesthesia thus produced is lasting and the absolute non-toxicity of orthoform adapts it to many of the minor operations.—*Berl. klin. Woch.*, 1897, No. 49.

Molteat's Method of Treating Spina Bifida.—After incision parallel to the axis of the spine, and isolation of the sac, a small quantity of the liquid is evacuated and the tiny hole closed with hemostatic forceps, twisted a little to form a small pedicle below them. This pedicle is then ligated with catgut; the part between the ligature and the forceps resected, and a small compressing bandage applied. The next day the operation is repeated exactly the same, on the opposite side of the sac, avoiding the nerve elements, and so on gradually until scarcely anything is left of the sac, which is finally reduced at last, unless this has occurred spontaneously. The whole is concluded with a Senenko osteoplastic operation, and suture in three planes.—*Gaz. degli Osp. e d. Clin.*, January 23.

Citric Acid in the Prophylaxis of Whooping Cough.—Moncorvo Filho of Rio Janeiro states that the special bacillus of pertussis is destroyed in its chosen home, the larynx, by swabbing the periglottic region with a 10 per cent. solution of citric acid, with simple syrup. It also constitutes an effective prophylaxis against infection. He succeeded in preventing the disease in many children living with others infected, by this means, or merely the administration of small quantities of citric lemonade during the day. He considers resorcin and asaprol the most effective of other remedies.—*Brazil Médico*, December 22. A long article by Gillet in the *Presse Méd.*, January 22, recommends belladonna in progressively large doses as a simple and valuable symptomatic in whooping cough.

Treatment of Mental Strain.—In cases impossible to treat by the only rational means, removing the cause, in which the mental strain must be kept up, Romme recommends in addition to hydrotherapy and massage, two pills of 1 milligram strychnin arseniate each, and one pill of 8 milligrams zinc phosphid during the day, at breakfast or dinner according as the person retires early or late. This can be kept up during the entire period of intellectual work, suspending it two days each week. If the strain is continuous, the pill can be taken from time to time whenever especially fatigued, or a strychnin pill every other day and a zinc pill every fourth day. Make the latter according to the formula: zinc phosphid, 0.80 centigrams; pulv. gum arabic, 1 gram; pulv. licorice, 3 grams; honey q.s. to make 100 pills. Coat with silver and keep dry, sheltered from the light. Renew every month.—*Presse Méd.*

The Improved Technique in Trephining now possible with Gigli's wire saw is the subject of an article by E. Braatz in the *Cbl. f. Chir.* for January 22. He states that it avoids all jar, and the piece cut out fits in again with remarkable precision. The edges can be cut straight or slanting as desired. He has invented an instrument to drill the preliminary holes on the principle of an augur, but very short, 15 cm. the total length, which ensures great delicacy and accuracy. The U-shaped part usually grasped by the hand is made too narrow to admit the hand. A projecting handle rides loose upon it at right angles to the shaft, and by this the drill is turned, while the pressure is from the other hand above. He uses an ordinary drill changing to a fraise as the bone is nearly penetrated. He inserts the saw with a sound curved to correspond to the distance between the holes; 93 degrees of an arc of 8 cm. diameter for a distance of 4 cm.; 140 degrees of an arc of 5.3 cm. for a distance of 3 cm. and a half circle 2.5 cm. in diameter for a distance of 2 cm. The drill-holes serve for drainage afterward. *Vide* JOURNAL, Vol. xxix, page 504. Gigli is pronounced Jeel-yee.

Methyl-Blue in Malaria.—J. P. Cardamatis of Athens reports that he has administered methyl blue in 275 cases of malarial fever during the last three years, and has been amazed at its prompt and effective action. He considers its therapeutic value in malarial fever far superior to that of quinin and "can not praise it enough." Its efficacy was especially noticeable in persons so saturated with quinin that they had ceased to react, and in those in which quinin was counterindicated. The results were undeniably successful in 93 per cent. of the total cases of acute and chronic malarial fever treated, and it even confers immunity; only 15 per cent. of the persons continuing to live in extremely malarial districts had relapses within a year. The result was negative in 7 per cent. The only inconveniences were the staining of the mouth and clothing when the liquid form was used (infants). He gives four tablets a day, one every two hours. The daily dose for adults is 10 to 12 grains; for older children 8 grains, for younger children 6 grains, infants 1 to 2 grains. It is administered ten to fifteen days and then suspended for two or three days and a purgative given, resuming for three or four and then suspending for three to eight days and resumed at intervals, ensuring a total of seventeen days in twenty-two for acute or chronic quotidian, in which the fever disappears in the first five days, sixteen days in forty-eight when the fever reappears in the first five days and twenty-eight in sixty days in the tertian and quaternian form.—*Deutsche Med. Woch.*, February 3.

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SATURDAY, MARCH 5, 1898.

APYRETIC TYPHOID FEVER.

It is an interesting fact in clinical medicine that every infectious disease which attacks human beings in the vast majority of cases results in producing a more or less constant rise in bodily temperature. One would suppose that the poisons of one infection might irritate the heat centers in such a way as to cause an increased generation of heat, while other poisons would depress them to such an extent, or would so seriously interfere with oxidation processes in the body, that instead of the temperature rising above normal it would fall below it. It is true that in a certain number of cases where the infection is particularly malignant, and where the individual seems peculiarly susceptible, fall of temperature does follow the infection, the patient immediately passing into a condition of profound toxemia with symptoms resembling collapse, but these instances are so rare as to be practically curiosities in medical literature. It is interesting to note, therefore, that from time to time, as our observation of diseases becomes more accurate and our methods of diagnosis more complete, physicians are recording instances in which grave infectious diseases have been attended, if not by a fall in temperature, at least by no pyrexia. Originally, fever was perhaps the most important diagnostic point in connection with the case, but at the present time we regard it merely as a symptom of some prominence, possessing certain indications, and rely upon other physical signs more objective in character before we make a positive diagnosis.

Many years ago a very large number of cases of true typhoid fever were not recognized as such and were classified under the head of gastric fever, or simple continued fever. These cases are today properly recognized and add very largely to the number of cases of typhoid fever which are reported. Some years ago FISK of Denver, reported a series of cases of typhoid fever, in which the temperature ran a typical but nevertheless apyrexial course, and similar instances have been seen in the East, recorded by clinicians, though none of them so far as we are aware have reported them as thoroughly as has Dr. FISK. In this connection it is interesting to note a recent paper by WEILL and PEARY, published in *La Province Médicale* for November, 1897. In this case the temperature was normal or subnormal, practically throughout the entire course of the disease, but the pathologic process was accompanied by the characteristic symptoms of typhoid fever so undoubtedly that no question as to the diagnosis could be admitted. The symptoms began with the usual vague manifestations of general wretchedness, with great fatigue upon attempting any exertion. There was loss of appetite, frontal headache, restless sleep, vertigo, nausea, but there was no epistaxis. There was also pain throughout the limbs. The tongue was characteristic, red on the edges and rough in the center. Constipation was present. There were no rose spots early in the attack. The abdominal walls were soft and pliable. The lungs were normal, there was a slight murmur at the base of the heart. The pulse was quick and small and easily accelerated by excitement. Vomiting was sometimes present, and a restless sleep finally became complete insomnia. Several days later in the case abundant epistaxis came on in the night. There was diarrhea of a non-fetid character, which was persistent and vomiting became a persistent symptom.

WEILL and PEARY go over the case very carefully, present its temperature chart, exclude anemia and other causes of low fever and conclude that this was another instance of apyretic typhoid.

QUANTITATIVE HEREDITY.

The usual views of hereditary transmission of qualities from parent to child have been contentedly vague as to the exact amount derived from either parent or grandparent or more remote ancestor. It has been probably assumed by most of those who have given any thought to the subject that such calculations were impossible or that at least that the laws governing such transmission depended upon so many and so different conditions as yet, and probably long to be, unknown to us, that it was useless to try to seek them out. We know as physicians that certain pathologic heredities are more or less special to one or the other sex, that in some prominent instances a feature or cast of countenance, mental or moral trait seem to be a family characteristic, while in others there is apparently nothing to indicate descent in the way of family traits or features. Once in a while a known ancestral character makes its appearance, having skipped one or more generations, and to this we give the name of atavism and leave further explanation as useless or impracticable. The hitherto recognized laws of heredity are few and hardly touch the question on its quantitative side; the distribution of ancestral traits has been considered to be too capricious as a rule to afford the data for generalizations in this particular direction, at least in the human species, where all matters involving faculty or capacity are so much more complex than in the lower animals.

Several years ago Mr. FRANCIS GALTON, one of the most active investigators of this subject, published a theory of heredity that takes account especially of the respective portion due to each parent and ancestor. Counting the total of the organism as 100, he held that one-half, or 50 per cent., is derived from the progenitors, one-half of this from each parent. They in turn derive half their traits and features from their respective parents, and so on to the most distant ancestral relative. Any individual may therefore be reckoned as owing one-quarter of his peculiarities to each of his parents, and through them one-sixteenth to each of his four grandparents, one-sixty-fourth to each of his eight great-grandparents, and so on in a continually decreasing ratio to his remotest forefathers. In a more recent publication GALTON has given facts confirming this theory which were derived from a study of a well-known breed of dogs showing certain markings and peculiarities that facilitated this particular line of inquiry, and it may perhaps be accepted as a fairly probable working hypothesis.

What is true of the lower animals is also within certain limits applicable to the higher ones and from this point of view GALTON'S theory is of interest to us as physicians. It will help us to a provisional estimate at least of the possibilities and dangers of intermarriage, of the risks of inherited disease, etc. One consideration, however, must not be overlooked; it must not be assumed, to use a somewhat vulgar comparision, that the cards are thoroughly shuffled at each re-deal, that the transmission of qualities is general rather than special in every individual case. The inheritance transmitted from parent to child may be in large part that which the former received from his ancestor; this is the basal fact of evolution and of the perpetuation of species as well. We see it in the family features transmitted through many generations, of which the Hapsburg lip and the Bourbon nose are historic examples. This fact, however, is perfectly compatible with GALTON'S theory of heredity, though it would probably so complicate the observations that it might sometimes make it the more difficult of confirmation in carrying out the investigation in the higher animals and especially in applying the theory to the heredity of human faculties and traits. It would be of especial interest could we also find some law that governs the apparently so capricious selection of qualities in inheritance, irrespective of the amount derived from either parent, but that is a problem for the future.

GALTON'S theory, if it is capable of being sufficiently demonstrated as a fact, is certainly a valuable addition to our resources for the study of heredity, not only in a general scientific point of view, but also in all appearance and probability in its special application to the facts of hereditary disease.

MALARIA INFECTION.

Perhaps one of the most remarkable facts presenting itself to the student of medical literature, is the swing of the pendulum, as it may be called, upon almost every topic pertaining to the science. This seems to be especially true concerning those subjects of which we seemed or seem to have more than an average knowledge. Histories of medicine teem with examples. The controversies of pathologists as to the formation of infarcts, the etiology of tumors, the changes taking place in inflammatory processes are familiar instances.

. To discuss a subject of somewhat more recent date: if there were one disease upon which we could place our scientific finger and say, "It is," or "It is not," that disease is malarial fever. The intermittents were reveled in by our laboratory savants as mere child's play, while every dabster at the microscope was surprised and delighted at the fields of tertian and quartan organisms so easily outlined before him. So we thought. But while burying ourselves in the laboratory, carefully and accurately examining the blood of all patients (not those alone suspected of being malaria infected), always finding, if not at first, after repeated examinations, the specific hematozoon of our search, the clinician has been directing his attention into other lines and after a few cursory peeps through the microscope he exclaims, "Behold, I do not see this much-lauded insect; ergo, it is not here. I have made the diagnosis of my patient's trouble by his chills, fever and sweats, his enlarged spleen, and has he not a labial herpes? The clinician has been under the heel of the pathologist and the bacteriologist too long. I will hie me to my den and there indite an epistle entitled, 'Malaria *sans* Plasmodia.'"

In 1881 the researches of LAVERAN gave to the world the statement that malaria was another of the class of infectious diseases; a disease in which the specific organisms were found within the red corpuscles of the blood and upon which they exerted a parasitic action, growing at the expense of their hosts. A new impetus was given to the study of malaria, and incidentally to the blood, and it was soon developed that the plasmodium, as the organism was called, was found in no other disease. Italian observers, CELLI, GOLGI, MARCHIAFAVA; Prof. KLEBS, and in this country, PEPPER, OSLER, DOCK and others contributed to place the affection upon a firm scientific basis. Three distinct varieties were discovered, the tertian, the quartan and the estivo-autumnal, the difference being in the length of maturation, the size of the different varieties and certain pigmentary changes. One of the most valuable discoveries of recent years has been the pathognomonic sign of the estivo-autumnal, the presence of crescents and ovoids in the blood after the first week. Experts all recognize that almost invariably obscure malarial symptoms occur in this form. The not unusual enormous difficulty in finding the parasite of this variety will be appreciated by all who have had any experience in this kind of blood work. The less direct the symptoms pointing to malaria, the more difficulty is encountered, as a rule, in finding the parasite. All are familiar with the presence of solitary "malarial" (?) symptoms, headache, neuralgia, chilly sensations, perhaps coming on with some approach to periodicity. Think how comparatively few are the plasmodia requisite to produce such a condition, and then turn your mind to the fact that an exceedingly small proportion of this diminution is found in the peripheral blood. Is it any wonder then that even with the best observers and most careful and long-continued searches cases occasionally occur that are barren of results as far as the hematozoon is concerned?

The dictum of THAYER and HEWETSON that the crescent positively indicates estivo-autumnal malaria, was followed by that of OSLER, than whom no one is more qualified to judge, that malaria is always due to the plasmodium, and secondly, that any fever that resisted the action of quinin, always of course properly administered, is not malaria. As the scientific aspect of this disease became more and more worked out, and not every case in which no diagnosis could be made was labeled "a touch of the malaria," that *bête noire* of every true physician, this latter statement has become a recognized law of therapeutics.

Scientifically, in what way is the fever of malaria produced? In the intermittents, by the reaction on the part of the system against the maturation and invasion of an immense number of parasites during a comparatively short space of time. In the remittents, other cycles of growth are completed before the reaction from an immediately preceding cycle has been recovered from. In the continued forms, sporulation and invasion by a small number of parasites is of constant occurrence, but as the number is small the reaction on the part of the economy is not great; hence there are no chills and the fever is comparatively low.

Experiments outside the body have repeatedly demonstrated that the parasite perishes in a weak solution of quinin, as dilute as 1 to 10,000. If absorbed, 0.3 gram of quinin would make of the humoral fluid a solution of several times this strength. The first indication then to be filled in the treatment of malaria is to be sure that our antiperiodic is administered in a form capable of assimilation by the case at hand. This of course entails in not a few instances a consideration of the stomach mucosa. If we administer a drug, which by its presence in the blood results in death to the malarial parasite (if outside the body, why not within?) it naturally follows that non-assimilation will result in non-cure. Would not atrophy of the gastric mucosa result in diminished or non-assimilation of our quinin? In malaria infected districts the inhabitants, whether suffering from the disease or not, are accustomed to take large doses of quinin more or less regularly, and more regularly immense doses of whisky to ward off a possible infection. In reviewing the etiology of atrophic gastritis, what more constant or more potent factor is present than the ingestion of alcohol. Another point: In the West and Southwest especially quinin is not always administered by a regularly qualified physician. The people themselves know the danger that lurks constantly around them and are always drugging themselves for every ailment of all forms and descriptions as "a touch of the malaria." Very good. Now as to the preparation: The bisulphate of quinin in solution? No indeed. What need when the drug companies turn out yearly millions of their little 0.3 gram pills. Now we have coming together these medical bullets and a mucosa, gastric and intestinal, practically useless for purposes of assimilation. It is curious that an occasional case is not reported of intestinal obstruction due to undissolved quinin pills. The practical result that concerns us, however, is that these chronic cases, always estivo-autumnal, by far the hardest to cure, continue to have fever, and we are where we started. The patient has malaria beyond a doubt; he has been saturated with quinin and his fever is still flourishing in a quiet way. Therefore, the statement "that any fever which will not respond to quinin is not malaria," is false. *Q. E. D.* Make sure of one little point, that your quinin has come in contact with the blood stream, and the case is yours. This is not a story of invention. The writer has himself experienced such cases. The thought occurred to him, "Has my quinin been absorbed?" to be immediately followed by the second, "how to be sure that in any given case it is absorbed." Hypodermic injection! The experiment was tried and the battle was with the dictum of Prof. OSLER. This law was laid down five years ago and thousands of physicians all over the land are ready to vouch for its truth. Those of you who are not, examine the blood repeatedly; see if something else will not account for your "touch of malaria," or give hypodermic injections; 0.3 gram of a solution of the bisulphate injected every four hours in the deep muscles of the back or in the gluteal region, will transfer your patient's blood into a weak quinin solution, in which death of the parasites will occur as fast they are set free in the blood. The pain is no greater than in the giving of any other hypodermic injection, abscesses are no more common, and you are sure that your drug will be taken into the general system.

The burden of all this is that in a recent number of a large eastern medical journal, a lengthy article was published on malaria, which coming from a man of considerable clinical experience, might tend to weaken in the minds of many men who perhaps have now had the best of luck in finding the plasmodium, the real standing of this organism as regards ague infection. To these let it be said that if we know anything of infectious diseases, we know that a specific microorganism is always the cause of the given disease; that it never enters as a causal relation into any other infectious disease.

The article in question takes the stand that the finding of the plasmodium is by no means essential in the diagnosis of malaria. In the classic intermittents, where the cycle of chill, fever and sweat come on at the same time daily, every other day, or every fourth day, that is of course true; the veriest tyro in medicine would without hesitation make the diagnosis correctly in such instances. And it is in these very cases that the finding of the plasmodium is attended with no difficulty. It is in the cases with obscure symptoms, those as mentioned before, that are due usually to infection by the estivo-autumnal parasite, that the diagnosis both clinically and microscopically becomes a matter of doubt. An affirmative therapeutic test in these obscure cases is not sufficient evidence on which to base a diagnosis. Many affections get well of themselves; quinin is often given as a tonic or as a placebo. Would we call all affections that improved or recovered because they happened to be receiving quinin at the time, indeed often in spite of it, of malarial origin?

The distinguished author brings in support of his arguments, that while in pulmonary tuberculosis the finding of the tubercle bacillus in the sputum is of the highest importance, it is by no means of absolute necessity in making the diagnosis; the physical signs will almost invariably be sufficient. Very true, but what physical signs or even symptoms, barring one or two of the latter which might well belong to one or another of a dozen different diseases, do we have in malaria? To make a diagnosis of ague we must in many cases rely entirely on the microscopic examination. We all admit, in cases of pulmonary tuberculosis, the invariable presence in the lungs of the tubercle bacillus, even if we do not find the latter in the sputum. Why not give the plasmodium an equal chance as regards the blood. Some cases of early tuberculosis have no cough or expectoration; hence the sputum is not always accessible for examination. The same can not be pleaded for the blood: it can always be obtained readily. Let not the pendulum swing us again into doubt and obscurity. Let us look upon malaria as an infectious disease, and keeping in mind the nature of this class, allow no one to make his boasts of his great successes in treating "a touch of malaria" without the innocent query, "Did you find the plasmodium in the blood, doctor?"

CONCERNING TUBERCULOUS AORTITIS.

The early opinion that the internal coat of the larger blood vessels of man is immune against tuberculous disease has been abandoned since the well known researches of Weigert[1] concerning the origin of general miliary tuberculosis from tuberculous foci in the walls of pulmonary and other veins. It is now generally known that in tuberculous leptomeningitis, for instance, there occurs a marked tuberculous disease of the small arteries.

When the walls of the blood vessels, particularly the larger branches, become tuberculous, then it is due, in the majority of cases, to direct extension of the process from a tuberculous focus in the vicinity of the wall. Independent tuberculous disease of the vessel wall is much rarer; in the majority of the cases it must then be regarded as of hematogenous origin. In the later stages, however, of such foci it is usually impossible to say whether the disease began in the form of a primary tubercle of the intima, that originated from deposition of tubercle bacilli in the blood stream, or whether the disease began as the result of a hematogenous tubercular infection of the vasa vasorum. Examples of both methods of origin have been described quite frequently in the literature.

The veins are much oftener involved in tuberculous disease than are the arteries. Numerous observations of venous tuberculosis, but only a small number of cases of tuberculous disease of the large arteries have been described. In the large branches of the pulmonary arteries Muegge,[2] Weigert[3] and Herxheimer[4] saw tuberculous proliferations projecting into the lumen, which undoubtedly were due to extension from the tuberculous bronchial glands.

Tuberculous proliferations in the aorta belong to the rarer diseases. Dittrich,[5] Kamen[6] and Sig[7] have described the extension of tuberculosis from bronchial or posterior mediastinal glands, or from a cavity in the lung, to the aorta, with the production of aneurysm or rupture of that vessel.

Of independent tuberculous disease of the wall of the aorta, not due to extension, there are only a very few cases. ZAHN[8] describes a case of multiple nodules in the aorta and the iliac arteries in a tuberculous individual with general miliary tuberculosis. While the exact nature of this case, which occurred before the time of discovery of the tubercle bacillus, has not been established, there seems no doubt but that it concerned a tuberculous proliferation. At any rate, that is the view which STROEBE[9] has of the case. WEIGERT[5] has also described tubercles in the aorta, and refers to some similar findings of MARCHAND and HEUBER. MARCHAND[10] states that sometimes in miliary tuberculosis one can find small tuberculous caseous nodules on the intima of the aorta, which seem frequently directly due to the implantation from the blood stream. These nodules are, therefore, very much like the tubercles not so very rarely observed upon the endocardium in miliary tuberculosis. HANOT and LEVI[11] saw a larger tuberculous mass, with bacilli and giant cells, underneath the endothelium of the intima of the thoracic aorta in a man 61 years old, who died from miliary tuberculosis.

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[1] Virchow's Archiv. lxxvii and lxxxviii.
[2] Virch. Arch., lxxvi.
[3] Loc. cit.
[4] Virch. Arch., cvii.
[5] Zeitschr. f. Heilk., ix.
[6] Ziegler's Breträge, xvii.
[7] Inauguration Dissert., 1896.

Very recently STROEBE has described an observation made on the body of a young man 16 years of age, who died from miliary tuberculosis, which apparently originated in the bronchial glands. There were very numerous miliary and larger tuberculous nodules in almost all of the organs. The heart was normal. In the ascending aorta, 2 cm., above the sinus of Valsalva, there was a small projection about one-third of an inch in height, which was firmly adherent to the wall of the aorta and covered with some fibrin. Otherwise the aorta was normal, and there were no apparent changes around the outside of the aorta at that point. Microscopically it was found that this nodule consisted of proliferated endothelial cells, with leucocytic accumulation, caseation in places, and fibrinous deposits upon the surfaces. There were no giant cells. The free surface of the nodule had undergone caseation in one or two places. In one place the elastic lamina had been destroyed, and the cells rested directly upon the media. Below the nodule the elastic tissue of the aorta was found to be somewhat loosened and split up. Otherwise the wall of the aorta was normal. The examination of the specimen for tubercle bacilli showed that these were very numerous.

In this case it does not concern a simple miliary tubercle but a larger mass, which in all probability originated as a miliary intimal tubercle. The case very much resembles the one already referred to, which was described by ZAHN as endarteritis verrucosa, inasmuch as it here also concerns an absolutely healthy aorta, without any tuberculous foci, without any disease in the immediate vicinity, and therefore a condition that must be regarded as an independent tuberculous aortitis which developed upon a previously healthy wall. This is interesting because many authors, as for instance MARCHAND, deny the existence of an independent acute verrucose aorititis, of any etiology, corresponding to this usual form of endocarditis. Tuberculous aortitis, as described in this case, may be placed parallel with the cases of valvular endocarditis that occur in phthisic patients. Such endocarditis may occur upon previously healthy valves, as well as upon those previously diseased. The essential change in this aortitis consists in a proliferation of the endothelium, due to the action of the tubercle bacillus; the mode of infection with tubercle bacilli in this case may be reduced to two possibilities. Either the tubercle bacilli were implanted upon the wall of the aorta from the blood stream, or they were brought to the intima by the vasa vasorum in the subintimal layer of connective tissue. Perhaps the first possibility is the more likely one, because a large mass of tubercle bacilli in pure culture was found directly upon the place where the healthy endothelium formerly existed. It is also to be remembered that in the thoracic aorta the loops of the vasa vasorum do not reach entirely to the endothelium, but only to the border of the middle and inner thirds of the media, so that the inner third of the media is avascular under normal conditions.

THE WEEK IN CONGRESS.

Last week in Congress there were hearings by the Committee on Interstate and Foreign Commerce, of which Mr. W. P. HEPBURN of Iowa is Chairman. Dr. U. O. B. WINGATE, Chairman of the AMERICAN MEDICAL ASSOCIATION COMMITTEE and Secretary of the Wisconsin State Board of Health, appeared in favor of the SPOONER Bill, as did also Dr. H. B. HORLBECK of Charleston, S. C., Health Officer of that city, and Dr. A. H. DOTY, Health Officer of the City of New York. On the other side appeared the Chief of the Marine-Hospital Service, with some officers, and Dr. DRAKE, a railroad surgeon of Atlanta.

Dr. HORLBECK made the principal speech against the CAFFERY-HEPBURN Bill, and in favor of the SPOONER Bill. The points were such as have been summarized in the account of the Mobile meeting, and were sound and well taken. Congressman MAHON of Pennsylvania also appeared before the Committee in favor of his Bill, which is the one for dividing the country up into sanitary districts, each district to be presided over by a commission. He changed his original Bill so that it would be practically under the control of the Marine-Hospital Service.

In addition to an excellent argument on this question, Dr. DOTY presented a telegram showing that the New York Academy of Medicine had endorsed the SPOONER Bill. It should be remembered that the CAFFERY Bill was introduced in the House by Mr.

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[8] Virch. Arch., lxxxviii.
[9] Centrblt. f. Path. viii, 1898.
[10] Eulenburg's cyclopedia, ii.
[11] Gaz. méd. de Paris, 1895.

HEPBURN, and is known as H. R. 4363. This Bill should be killed. The SPOONER Bill was introduced in the House by Mr. OTJEN, and is known as H. R. 8280. The earnest and active support of every member of the ASSOCIATION who favors the creation of a Commission of Public Health, is imperative. Write to your Member of Congress and Senator immediately, if you have not already done so, urging them to oppose the CAFFERY Bill and favor the SPOONER Bill, which is the bill prepared by the Committee of the ASSOCIATION, endorsed by the American Public Health Association and recommended by sanitarians everywhere, with one or two exceptions. These exceptions are, so far as we are aware, certain publishing organs that have books for sale, and a certain sanitary journal, the editor of which long ago survived his usefulness, and is more an object of pity than of any other sentiment. In some of these interesting articles a fling is taken at the Mobile Convention, because, forsooth, the plans of the bureau at Washington were not endorsed by that Convention. It is stated that the Convention was improperly influenced by gentlemen who were not in the interests of this autocratic bureau. Let us see. The bureau sent two surgeons, one passed assistant surgeon and one assistant surgeon, at public expense to attend this meeting, one surgeon being already on the ground as a resident. Every effort was made to bring the individual members of the Convention to suit the views of the bureau, and a great deal of energetic but misdirected effort to that end was made. That they failed is a matter of history, and now because of that failure the Mobile Convention is "of no particular consequence anyhow." The surgeon who acts as the Chief of the Bureau of Publicity and Promotion for the Marine-Hospital Service will have to write more editorials before he succeeds in convincing the people of the United States that the Mobile Convention was composed of any others than gentlemen who were not only in earnest in the cause they advocated, but were guided by the most patriotic sentiments.

Dr. SAUNDERS deserves great credit for his public spirit and the success of the Convention.

CORRESPONDENCE.

Against the Gallinger Bill.

THE DENVER AND ARAPAHOE MEDICAL SOCIETY,
DENVER, COLO., Feb. 3, 1898.

E. Stuver, M.D.—There is a bill now before the United States Senate, action upon which may be had at any time, the provisions of which are inimical to the interests of the medical profession, and to many commercial interests. It is Senate Bill 1063, Calendar No. 136, entitled "A Bill for the further Prevention of Cruelty to Animals in the District of Columbia." In accordance with the usual custom, the bill was referred to the Committee on the District of Columbia, and favorable action thereupon was unanimously recommended by said committee. On Dec. 15, 1897, Senator Gallinger, according to the *Congressional Record*, announced his intention to bring said bill before the Senate for discussion and action. It would, therefore, appear that action upon it may be expected at any time.

This bill, as is well known, is intended to control and restrict the practice of animal experimentation in the District of Columbia. Its principal supporters are the antivivisectionists. All of the principal National, State, and local medical and scientific societies have already protested against the proposed legislation.

At a meeting of the Denver and Arapahoe Medical Society, held at the Brown Palace Hotel, Jan. 25, 1898, the following resolution was unanimously adopted:

"*Resolved*, That it is the spirit of the medical profession of Denver that a strong protest be made against the passage of Senate Bill 1063, Calendar No. 136, entitled 'A Bill for the further Prevention of Cruelty to Animals in the District of Columbia,' and

"*Resolved, further*, That the President and Secretary of the Society be directed to communicate at once with our honorable Senators urging them to do all in their power to defeat a bill that will do untold injury to the advancement of medical science and to the prevention of disease among mankind and animals."

A committee was also appointed to attend the Stock-Growers' Convention, then in session in this city, with the purpose of interesting them in the defeat of the bill. They met with the most courteous reception, and easily succeeded in securing the passage of appropriate resolutions, a copy of which is herewith enclosed.

It has occurred to some of us that as the protests from medical and scientific societies are already practically unanimous, that next to their renewal, our best move is to interest commercial enterprises, such as the stock-growing interests. If it can be shown to the satisfaction of our Senators and Representatives in Congress, that the opposition to the bill is not confined to a certain clique of professional men, whose opposition thereto might be misinterpreted, but that commercial interests will also be affected by such legislation, their active co-operation for the defeat of the bill will be thereby secured.

Knowing your prominence in Wyoming and your large influence with the varied interests there represented, I write to you to enlist your active co-operation. It is desirable, first, that your Senators be written to, protesting strongly against the proposed legislation. Personal letters will probably be of most value. Protests from medical and scientific societies should also be renewed. In writing, give the number and title of the bill, as above. In addition to this, if you can get the stock-growers and agricultural societies, and such other interests as in your judgment are affected by the bill, to forward official protests, and if you can prevail upon prominent stockmen, who know the Senators personally, to write them personal letters, showing in what way such legislation would be detrimental to their interests, it is my opinion that much good may thereby be done.

I believe our best arguments, from a practical standpoint, consist in showing what great good has been accomplished by the investigations of the Bureau of Animal Industry of the Agricultural Department, in investigating diseases of animals, of ascertaining methods of early diagnosis, for instance, the tuberculin diagnosis of tuberculosis, and in providing remedies therefor, as in the recent valuable remedy for the swine plague. Hoping you may see fit to give us active support,

Yours very truly, G. E. TYLER, M.D., Sec'y.

A Rare Accident in Childbirth.

BUTTE, MONT., Feb. 19, 1898.

To the Editor:—The patient, Mrs. G. H. M., aged 26 years, weight about 125 pounds, of medium height, native of Scotland, was married to her second husband seven months previously. She had twice miscarried, her last pregnancy being three years ago. She was taken in labor at full term on July

8, 1897, in the evening. She was having strong pains. Digital examination revealed only sufficient dilatation to admit point of forefinger. The waters had escaped. The presenting part could not be certainly diagnosed by vaginal touch and she was too tender and nervous for an abdominal palpation sufficiently thorough for a satisfactory diagnosis of presentation and position. The os was very rigid. After watching her for some time I noticed no progress whatever in dilatation and that she was bearing her pains very poorly. In the discharges there was not the faintest trace of blood.

The best treatment which I have ever found for rigid os complicated with threatened nervous exhaustion is some form of opium in large doses. Three tablets, each containing morphia sulphate, gr. ¼; atropin sulphate, gr. 1/150, were given hypodermatically. At 4:30 A.M. the pains were regular and strong and the patient had had a good rest. I found signs of a slight hemorrhage in the bed. Examination revealed a breech presenting in the sacro-left-anterior position. The presenting part had passed entirely out of the uterus and was resting under the pubic arch. The labor made slow but steady progress to a complete and safe delivery of a large male child which soon breathed and cried lustily. There was no perineal laceration. The placenta was delivered in fifteen minutes with vigorous contractions of the uterus. After delivery of the placenta I noticed something protruding from the vulva, which, with very gentle traction, separated from a slight internal attachment when it was discovered to be the os tincæ complete and entire torn off from the cervix. Not a half pint of blood was lost during the whole confinement, notwithstanding this accident. No anesthetic was given. No particular pain was complained of.

Had this complication occurred under powerful uterine action, goaded on by ergotic stimulation, it would have been less wonderful, although such an event I believe to be unheard of. But in this instance the tear took place while the patient was under the sedative and eminently relaxing influence of the morphia and atropin as above. Moreover, it happened without her being, apparently, in the slightest degree conscious of it. Her recovery was quite protracted. No hemorrhage. No odor to lochia. She had no milk for the babe, who has thrived vigorously on the bottle. She developed a phlegmasia dolens of moderate severity on one side and was very weak and feeble for three or four weeks. Her temperature would range from 100 to 103 degrees. Tablets of protonuclein and elixir digitalin seemed the most efficient medication. Milk and stimulants were used freely. She has menstruated regularly since, but more profusely than naturally. The uterus was examined a few weeks ago and found to be granulating nicely around the site of the tear. J. S. HAMMOND, M.D.

The Humane Society Deal in Fiction.

The following is a copy of a letter addressed by the Humane Society to a well-known Senator:

WASHINGTON, D. C., Feb. 19, 1898.

Dear Sir:—I desire to call your attention to the bill now before Congress, "for the further prevention of cruelty to animals in the District of Columbia," and intended for the humane regulation of the practice of vivisection.

It is not, as has been by some erroneously supposed, an "antivivisection bill," but provides only that experiments upon animals shall be performed only by properly qualified persons; that in experiments calculated to give pain, the animal shall be rendered insensible by anesthetics; and it also provides for the appointment of four inspectors, appointed by the President of the United States, to see that these regulations are complied with and to serve without pay.

Ordinary inoculation experiments are expressly excluded from the operation of this law.

We wish to point out to you that, to the certain knowledge of the Humane Society, there are perpetrated in this country, under the name of scientific research, acts of the most revolting cruelty and barbarity; that the young of both sexes are being trained to these practices; that even in the professions of medicine and surgery, whose devotees should be of all men most humane, they are now being educated by these means to an utter indifference to the infliction of pain and the sacredness of human life; that, to our certain knowledge, this rage for experiment, engendered by its unconstrained exercise upon animals, reacts upon human subjects placed, when ill, at the mercy of persons so trained, and especially upon the sick poor in hospitals, of whose abuse by such experiments there are many known instances.

We know that cruel vivisections have been done in the District of Columbia, though to what extent we can not know, owing to the secrecy with which such experiments are surrounded. We wish, however, to provide against them for the future.

Our opponents in the District claim that they now do nothing to which the bill objects. If their conduct is already in conformity with its provisions, their opposition is absolutely without cause, and they should be glad to forward legislation to prevent the hideous abuses known to exist elsewhere from creeping into our institutions.

Indignation has been expressed that anyone should attempt to put medical and scientific men under the control of law, but we submit that there is no reason why persons of this class should be more exempt from law than merchants or bankers or other classes for whose control special laws are framed.

We call your attention to the enclosed cutting, a synopsis of the report made by Senator Gallinger of the Senate "Committee of the District of Columbia," which reported the bill favorably without one dissenting voice; also to the fact that a petition in favor of this bill has been submitted to Congress of which Senator Gallinger, in presenting it, said that "probably no bill was ever presented to Congress which received the endorsement of so distinguished a list of men and women."

We beg that you will carefully consider and vote for this bill.

[Signed] A. S. PRATT.
For the Humane Society.

The Illinois State Board of Health.

SPRINGFIELD, ILL., Feb. 28, 1898.

The 19th and 20th Annual Reports of this board, to be published very shortly, will contain an official register of all licensed physicians practicing in Illinois. As the reports are sent to every State in the Union, and are largely called for by professional and business men interested, I desire that the register be as correct as possible; hence would ask that you kindly accord me space in your journal to ask that every physician who wishes to have his name and address correctly reported will send the information to us on postal card at once, giving number and date of certificate.

In over 70 per cent. of cases the addresses on file in this office are those originally given when the certificates were issued, and as no additional information has been furnished this office, either by the county clerks or the physicians concerned, many physicians are reported from towns from which they moved several years ago.

J. A. EGAN, M.D., Sec'y.

Bismuth Capsules—A New Application for the X-Ray.

BUFFALO, N. Y., Feb. 21, 1898.

To the Editor:—In your issue of February 19, you quote from a report of Boas and Dorn, in the *Deutsche Med. Woch.*, regarding the use of capsules of bismuth for location of lesions in the alimentary tract. As this is an important matter, in regard to which priority is, naturally, a matter of interest, will you kindly put on record the following data.

Feb. 9, 1897, I used gelatin capsules containing reduced iron for this general purpose, having had the matter in mind for some months. This experiment was a failure, on account of lack of power of X-ray apparatus, so far as the stomach was concerned, though the capsules could be plainly seen in the mouth. July 13, 1897, this method succeeded with three or four patients, using both iron and bismuth in the capsules. These experiments are more fully reported in *Medicine*, February, 1898. Very truly, A. L. BENEDICT, M.D.

Collective Investigation on the Action of Cold in Pneumonia.

PHILADELPHIA, PA., Feb. 26, 1898.

To the Editor:—My three collective reports already published on local cold applications in the treatment of acute pneumonia give a record of 299 cases so treated, with ten deaths, or a mortality rate of 3.35 per cent.

Being desirous of pursuing this investigation still further, I take the liberty of asking those who have tested this measure to kindly give me the result of their experience. Full credit will be given to each correspondent in the report which I hope to publish soon. Blanks for the report of cases will be cheerfully furnished by me, with postage for return of same, on application. THOMAS J. MAYS, M.D.

1829 Spruce Street.

Concerning Squirrels.

SANTA CLARA, CAL., Feb. 19, 1898.

To the Editor:—I wish to add a few observations and facts, regarding squirrels, gathered about the inhabitants of the trees of southwestern Michigan.

During the breeding season squirrels like other quadrupeds are very apt to fight. During this time the males battle violently. Their mode of battle is to chase each other until a favorable opportunity presents itself for one or the other to dart beneath the flank of his adversary and bite off his testicles. Sometimes both males share the same fate at the same time. The chisel-shaped teeth together with the ability to take a large round object into the mouth of the squirrel, makes it an easy matter for this animal to maim his adversary in this way almost instantly.

Instead of gray or fox squirrels castrating their own male young the credit must more often be given the agile little red squirrel who is the hardest fighter of them all. He is much quicker than his larger brothers of the other varieties and being smaller and shorter than they, can dart under them, perform his operation and escape before they can harm him. However, the red squirrels deprive each other of the testes during the breeding season. The chipmonk does the same thing. There is no mistaking a female squirrel for a castrated male, as the penis of the male is located under the belly instead of in the perineum, as in the cat. More than that, like the dog and the raccoon, the squirrel has a small bone in his penis which I have verified by dissection in an old male squirrel. The testicles of any old male of the squirrel are larger than those of the cat and hang in a pendulous manner. It is not strange that they should be bitten off readily by members of their own kind, when we consider the teeth and habits of feeding, etc.

I will conclude by showing that castration of his adversary is the squirrel's customary mode of warfare. I once captured an old male red squirrel alive and unhurt. I put him in a box with a large male ferret, expecting of course that the ferret would make short work of the squirrel. Instead of that the ferret had a very narrow escape from losing his testicles. It was only by backing into a corner and crouching down hard that he managed to protect himself until I came to his rescue with a stick. The squirrel makes no other attempt to bite or harm his adversary in combat than to castrate him. He is an expert at it too, as the very large number of eunuchs among male squirrels will testify. I have seen them fighting many times. Yours truly, E. H. SMITH, M.D.

How Squirrels Become Eunuchs.

CRAIG COLONY, SONYEA, N. Y., Feb. 22, 1898.

To the Editor:—Relative to the discussion now going on in the JOURNAL on the above subject, let me say that many years ago it was my pleasure to spend several weeks each fall for five successive years in squirrel-hunting in the eastern section of middle Alabama. My daily tramps in the sport were made with an elderly companion, a man of 60 years, who all his life had been an ardent lover of the sport, and who loved nothing better than the daily rambles through the great forests where the tallest trees grew and where gray and red squirrels (the latter also known as the fox squirrel) abounded.

One day I shot a young male and on picking him up was surprised to find the entire scrotal sac missing, with evidence of a recent injury to the parts. I called my companion's attention to it. "Castrated," he promptly replied. "How?" I asked. "By an old male squirrel," he said, and added that he had often found the same thing, and that he felt convinced that it was done by the old males before the young males left the nest, and that he had on more than one occasion found two young castrated squirrels in one nest. On asking what he thought the old male's motive was for doing it, he answered like the born philosopher he was: "I don't know; you had better ask the old male squirrel." Very respectfully,

WM. P. SPRATLING, M.D.

Eunuchism of Squirrels.

ELLICOTT CITY, MD., Feb. 25, 1898.

To the Editor:—The theory has been advanced by many hunters I have met that during the absence of the mother squirrel, the young utilize the male appendages as teats and in their kind effort to produce something that is not there, cause in time an atrophy of the organs. Personally, though I have killed many squirrels, I have never seen a male minus his testicles, due, probably to the fact that I have never searched specimens for their presence or absence, save as I skinned them for use on the table. I very much doubt the theory of the older males castrating the younger ones; there is no reason why this should be done, and betrays more sense than the animal's gray matter or habits would warrant. A study of the incisor teeth of the squirrel would also suggest a difficulty in performing the operation in the clean manner suggested by your correspondents, or in a manner that would render the operation anything but fatal.

Could it not be a congenital absence of the organs, or failure of the organs to descend into the scrotum, in many of the reported cases when they are absent?

SAMUEL J. FORT, M.D.

A Coroner's Perquisite.

ELIZABETH, ILL., Feb. 1, 1898.

To the Editor:—One of your "Selections" in which the London *Lancet* is quoted has no doubt found many readers who will profit thereby. And as the medical profession can do much to dispel erroneous ideas, the writer would continue to call attention to errors in the manner of calling a coroner's attention when his services are needed. In my jurisdiction good judgment is not lacking in freeing a body found suspended, etc. Quoting from the article in the JOURNAL of January 29, p. 263, "If life remains a medical man should be sent for and afterward the police." The sending for a medical man while life still exists may at times be forgotten, hence the necessity of calling attention to this matter. If a body is found *dead* the finder almost invariably sends for the police, and this officer may or may not send for the coroner. I do not think any good reason can be given for this circumlocution. The police usually search the unfortunate's pockets for letters, money, etc. In this way, before the arrival of the coroner, the lay press often gets sensational information that should not be published, and in this manner a genuine clue is often lost sight of and a police theory hovers in its place. Dr. E. W. Hoeber when coroner of New York City, found it necessary to complain to the chief of police. When the error was pointed out to him he instructed his captains as to the law, and that they must act accordingly and not search the body. It required a second visit on the part of Dr. Hoeber (several months afterward), when it again became apparent that the "chief's" instructions had been forgotten. This searching is clearly the duty of the coroner, for the reason that a coroner in Illinois is obliged to give a bond of $5000 in each county except Cook, where a bond of $15,000 is required, so that letters or moneys found will be safely kept for those to whom they rightfully belong. It should be a sacred trust with coroners to guard private affairs disclosed in letters, etc., from the public when they have no bearing in serving the ends of justice.

When a body is found *dead* there is only one proper way. *Send direct* to the coroner. Any man or woman should assume this authority. Medical men often have an opportunity and should instruct the people (including the police) that they have no right to take charge of or search a body *found dead* unless the coroner gives this authority. A prominent attorney who had become mentally deranged, took his own life in his office. A doctor and an attorney first discovered the dead body and in due time the deputy sheriff telephoned me. Later a night policeman, hearing of the attorney's death by suicide, went to the place and was in the act of making a forced entrance, as the rooms had been locked after the body was discovered. The layman above mentioned insisted that the night police should desist, as the coroner had been notified. No forced entrance was made. It was generally believed that this attorney took his own life because of absolute want. At the inquest this was disproved from the fact that a considerable amount of money was taken from his pockets. The doctor and attorney who found the dead body would have been justified in sending for the coroner *direct*, instead of serving notice through the deputy sheriff. Much more might be written on the abuse of the coroner's office, and when this matter is properly understood and acted on little more will be heard of the "obsolete coroner system.

PHILIP ARNOLD, M.D.

PUBLIC HEALTH.

Individuality a Factor in Birth Rates.—Dr. D. G. Brinton, once editor of the Philadelphia *Medical and Surgical Reporter*, in a recent article in *Science*, after quoting from the *Journal de la Société de Statistique de Paris*, November, 1897, an article by Arsene Dumont regarding the diminished birth rate of New England, gives his own conclusions. He finds the chief cause in the principle of democracy, which contains a toxic principle. The more intense republican civilization, the more acute becomes individualism, or the overpowering desire to live to the best personal advantage and to get all the good there is going, be it in the sphere of intellect or other gratification. But the numeric increase of the race is and must be inversely to the effort of the individual to develop himself personally. There may, however, be a democracy directed by science which can escape this poison. With this cheering but vague intimation the article closes.

The Results of Immunizing Experiments in Hog Cholera.—Voges and Schutz announce that immunity is only secured when the bacteria circulate in the blood, and that killed rothlauf cultures produce immunity as soon as they are inoculated directly into the blood. The immunizing substances comprised in the cultures are contained within the bodies of the bacterial cells. These cells are protected, however, by a wax-like resistant envelope which it is impossible to destroy by the Koch mechanical process, or by any of the known chemic agents, except lye, which destroys the immunizing substance as well. But the action of one or more of the organs of the organism is able to destroy this protecting shell and liberate the anti-bodies within it and thus induce immunity. The germs in the body are thus naturalized by: 1. The opening up of the bacterial shell by the activity of some organ. 2. The destruction of the bacterial protoplasm by the bactericidal protecting substances then liberated and dissolved in the blood serum.—*Deu. Med. Woch.*, February 3.

Antiseptics in the Preservation of Meats.—M. Duprez has recently presented a report to the Board of Health of the Seine, Paris, in which he calls attention to the increasing use of antiseptics by butchers for preserving meat. The product most generally used is olobar, which is nothing but a solution of bisulphate of calcium, containing 99 grams of sulphurous acid to the liter. Riche claims that the use of this compound is daily increasing and it is now extensively used in beer. It is claimed by the manufacturer of olobar that its use is harmless in that it does not cause the meat to undergo any appreciable change. This, however, hardly seems probable when we consider that we submit our staple food stuffs to the influence of agents as active as sulphurous acid and the sulphites; neither does it seem tenable that their action would be limited to the initial products of fermentation so as to absorb them and counteract their efforts. Experiments have demonstrated that a 1 to 8 solution of calcium bisulphite will penetrate very deeply the meat soaked in it and that the normal structure and muscular fiber does not remain the same, hence the refrigerating process alone should be relied upon for the preservation of meats.

Municipalities not liable for Negligence of Boards of Health.—In the case of Gilboy vs. the city of Detroit, it was alleged that the plaintiff kept a boarding-house; that he received a boarder in the usual course of business; that said boarder had been exposed to smallpox at the Merchant's Hotel in the city of Detroit, and that, through the negligence of the Board of Health, said person was permitted to go at large, instead of being confined; that it was the duty of the Board of Health, under the charter and ordinances of the city, to examine the person at the Merchant's Hotel, determine whether she had smallpox, and, if she had, to remove her to a pest-house or hospital; that the person received into the plaintiff's boarding-house was taken down with smallpox while there, and he, in consequence, suffered loss and damage. The facts were not denied, and thus was presented for adjudication, the sole question of whether a municipality is liable for the negligence of officers of the Board of Health in the performance of their duty? The supreme court of Michigan decides it in the negative, December, 1897. It says that counsel for the plaintiff cited no authorities to support their contrary contention, probably for the very good reason that none could be found. The universal rule is, declares the supreme court, that such boards and officers are not acting for private, but for public purposes; they represent the entire State, through the municipality, a political subdivision of the State; and municipalities, in the absence of express statutes fixing liability, are not liable for the negligence of such officers and boards.

Increasing Ophthalmia and Blindness in New Jersey.—The New Jersey State Board of Health has made public the following statement on the above subject: "The increase of blindness in New Jersey is five times more rapid than the increase in population, and purulent ophthalmia, an infectious and therefore a preventable disease, is believed to cause not less than 30 per cent. of all cases of blindness." This statement is admitted to be based not on any official statistics, since such are not available, but the information comes direct from the members of the medical profession who have been watching the increase of the disease. The State Medical Society of New Jersey, at its meetings in 1893 and 1894, discussed the subject at great length and drafted the bill that is now on the statute books, which is intended to limit the prevalence of the disease. The neglected law makes it compulsory on any attendant, nurse, midwife or relative of an infant that has inflamed, swollen or reddened eyes to report the fact immediately to the local health officer, who shall at once see that the attendance of a physician is secured and the baby taken care of. It is incumbent on health officers to notify all midwives and others who attend upon births, of the terms of the law, and that a penalty by imprisonment or fine or both may be incurred for neglect to report all cases of inflamed eyes.

BOOK NOTICES.

A Text Book on Surgery, General, Operative and Mechanical. By John A. Wyeth, M.D., Professor of Surgery in, and President of the Faculty of New York Policlinic Medical School and Hospital, etc., etc. Third edition, revised and enlarged. pp. 997. New York: D. Appleton & Co., 1898.

The original edition of this work was published in 1886; a second edition in 1890. The following from the author's preface to the third edition gives the scope of the work: "The introductory section is devoted to surgical pathology, subdivided into six chapters, which treat of inflammation, process of repair in various tissues of the body; specific and non-specific urethritis; erysipelas and actinomycosis; glanders, tetanus, malignant edema, hydrophobia, tuberculosis, syphilis, leprosy, diphtheria, typhoid infection, are also embraced in this portion of the work. Chapters 7 and 8 are devoted to surgical dressings, sterilization, asepsis and antisepsis, and anesthesia. In chapters 9 and 10 much attention is given to hemorrhage, wounds, burns, skin-grafting, frost bite, furuncle, carbuncle, ulcers and gangrene. Bandaging is given in chapter 11. Chapter 12 is devoted to amputations. Chapters 13, 14 and 15 deal with lymphatic vessels, glands, veins, arteries, aneurysm and ligation of vessels. Chapters 16 and 17 give the lesions of the bones and joints and various operative measures for their correction. Chapters 18 to 29 inclusive are devoted to regional surgery, and in that portion of this section in which the abdomen is concerned, many improved changes have been made and much new matter added. Chapter 30 takes up deformities and their correction, while the final chapter, 31 is devoted to the subject of tumors."

Wyeth's Surgery has always been a favorite with students and practitioners. While preserving the features that made the former edition popular, the matter has been brought down to date.

Treatise on the Diseases of Women, for the use of Students and Practitioners. By Alexander J. C. SKENE, M.D., LL.D., Professor of Gynecology in Long Island College Hospital, Brooklyn, N. Y., etc., etc. Third edition, revised and enlarged; 290 engravings, and 4 plates in colors; pp. 991. New York: D. Appleton & Co., 1898.

The former editions of this work were issued in 1888 and in 1892. The great strides that have been made in gynecology since the last edition of this work was issued have made it necessary to issue a new one, and the author has conscientiously made a revision which brings it down to date; consequently we find a fuller discussion of vaginal and abdominal hysterectomy than in any former editions, and the latest improved methods of performing these operations given. The control of hemorrhage by compression and electric heat receives much attention, and in a manner which will interest the general as well as the special surgeon. The electric hemostatic forceps devised by Skene as shown in pages 427 and 431, is clearly a great advance over the ligature in the performance of vaginal hysterectomy. The degree of heat is not one which will produce an eschar, but 170 to 190 F., the length of time which the electric hemostatic forceps are applied should be heated, varies from 30 seconds to 2½ minutes, depending upon the thickness of the tissue compressed between the jaws of the forceps. An excess of current for a few seconds before the commencement of its application seems to be necessary. These forceps require less electric energy than the average cautery electrode, but the current from the electric light main can be used, and is preferable as the care and attention necessary to keep a battery in working order are avoided. A "transformer" is necessary.

Twentieth Century Practice; An International Encyclopedia of Modern Medical Science, by Leading Authorities of Europe and America; edited by THOMAS L. STEDMAN, M.D., New York City; in 20 volumes; Vol. 13, "Infectious Diseases;" pp. 621. New York: Wm. Wood & Co., 1898.

The chapters of this volume are by P. Brouardel, M.D., of Paris; Jules Comby, M.D., Paris; Harold C. Ernst, M.D., Boston; Ernest Hart, D.C.L., London; John Wm. Moore, M.D., Dublin; Solomon C. Smith, M.D., London; Victor C. Vaughan, M.D., Ann Arbor, and Lawson Williams, M.D. London.

The articles are as follows: Ptomains, toxins and leucomains; infection and immunity; water-borne diseases; the duration of the period of incubation and infectiousness in the acute specific diseases, smallpox, vaccinia, mumps. In Dr. Comby's article on mumps, he quotes Catrin's observations on Val de Grâce in 1892. He says: "Of ninety-five cases of mumps, which formed the basis of our studies, we obtained positive results in sixty-seven. Thirty-nine out of fifty-six times we obtained pure cultures by puncture of the parotid glands; twice the cultures were impure, and fifteen times no result was obtained. These negatives may be explained by the occasional absence of any fluid in the organ, so that the plates were sown merely with sterilized water contained in the needle. In most cases the amount of fluid extracted did not exceed a few drops. The testicular fluid, on the other hand, almost constantly gave positive results, that is, in twelve out of sixteen experiments the fluid removed from points of localized edema gave a positive result in all cases examined (three), and the same was true in the two cases in which fluid from the swollen knee-joint was examined. In ten out of fifteen examinations of the blood while fever was present, the same microorganisms were found as in the fluid removed from the various organs. We found microbes two, and even three, weeks after apparent recovery from mumps, a fact which serves to explain the rare instances of contagion during convalescence. After a month elapsed our researches were always negative in their results. . . . The organisms found by us were micrococci, usually arranged in pairs, sometimes in fours, and rarely in zooglea masses. These cocci measured from one to one-and a half micromillimeters in diameter; they were mobile, but not markedly so. They were colored readily with the ordinary stains, but unlike streptococci and staphylococci, they did not receive Gram's staining. The bouillon, kept in an oven at 35 degrees C., showed changes at the end of from 20 to 24 hours, and these increased markedly later. Colonies on gelatin plates did not appear until the expiration of 48 hours; they were punctiform, white in color, grew slowly, and liquified also very slowly and tardily. In stab cultures the colonies developed as very minute pearls along the track of the puncture; liquefaction began at the surface and proceeded very slowly. On potato the whitish culture was scarcely apparent, but it was more so on carrot."

Inoculation experiments were unsatisfactory, since no known animal, except perhaps the horse, is susceptible to mumps. In white mice four out of twenty inoculations were followed by death, and on examination the spleen was enlarged. Four of these inoculations were made in the peritoneum, and in three of them death occurred. In all fatal cases the diplococcus was found in the blood removed from the heart cavity with all the usual precautions. Busquet and Ferré found a similar diplococcus in seventeen cases in the blood taken from the pulp of the finger and lobe of the ear and in the fluid from the parotid gland. Mecran and Walsh also isolated and cultivated this diplococcus in cultures made from the contents of Steno's duct during the height of the disease. Michaelis also found this diplococcus. Notwithstanding these reports, Comby is of opinion that the final experimental proof is wanting, that is, the reproduction of the disease in animals by inoculation.

The American Year-Book of Medicine and Surgery. Being a Yearly Digest of Scientific Progress and Authoritative Opinion in all Branches of Medicine and Surgery drawn from Journals, Monographs and Text-books by the Leading Foreign Authors and Investigators; Collected and Arranged with Critical Editorial Comments by Twenty-seven Authors, under the General Editorial Charge of George M. Gould, M.D. Illustrated, pp. 1077. Philadelphia: W. B. Saunders. 1898. Price, cloth, $6.50; half-morocco, $7.50. For sale by subscription.

Dr. Gould says: "The largely increased demand for the 1897 Year-book leaves no doubt as to the usefulness of our work and of appreciation on the part of the profession. These facts have increased the endeavor of all concerned in the preparation of the volume for 1898 to bring it more nearly to our ideal of perfection. With the growing clearness of conception on the part of the editors of the exact nature of the professional need, there has been a corresponding recognition of the necessity of keeping the epitomization within the limits allotted to previous issues. The vast and increasing literature has this year rendered the task of the editors of especial difficulty; but we believe it has been more thoroughly carried out than ever before, despite the protests of most of the editors that any possible sins of omission must be charged to 'insufficient space,' and not to neglect."

This volume has a copious index. No library is complete without Gould's Year-book.

Aids to Aseptic Technique. By A. D. Whiting, M.D., Assistant Surgeon to the German Hospital, Philadelphia. Pp. 157. Philadelphia: J. B. Lippincott Co. 1898. Price $1.00.

The object of this book is to aid those whose duty it is to prepare materials for an operation. It is divided into six admirably written chapters, and will be found very useful for the purposes for which it is intended.

Transactions of the Royal Academy of Medicine of Ireland. Volume X. Edited by John B. Story, M.D., F.R.C.S., General Secretary; Surgeon to St. Mark's Ophthalmic Hospital, Dublin. Pp. 477. Dublin: Fannin & Co. 1897.

The contents of this volume includes a list of officers, fellows, members, etc., as well as an address by Prof. Wilhelm His upon the Development of the Brain, and the papers and discussions in the section of medicine, section of surgery, section of obstetrics, section of pathology, section of state medicine, section of anatomy and physiology. The number and variety of illustrations in the volume are remarkable, and the papers are of a high order of merit.

Transactions of the American Microscopical Society. Vol. xix. Paper. Pp. 207. Buffalo: 1897.

This volume contains the proceedings of the twentieth annual meeting, held at Toledo, Ohio, Aug. 5, 6 and 7, 1897. The following papers, with numerous colored plates, are noted, among others: "Micro-structural characteristics of steel," "The rotifera of Sandusky Bay," "The comparative histology of the digestive tract," "A comparison of the phagocytic action of leucocytes in amphibia and mammalia," "A comparative study of hair for the medico-legal expert," "A study of the organs of taste," "Development of methods in microscopic technique," "Notes on the isolation of tissue elements," "Dahlia as a stain for bacteria in sections cut by the collodion method," "Two very simple microtomes."

Eleventh Annual Report of the State Board of Health of Ohio for the year ending Oct. 31, 1896. Cloth. Pp. 376. 1897.

This volume contains the general report of the State Board, annual reports of local boards for the year ending Dec. 31, 1896, additions to the library of the State Board, a list of cities and villages having boards of health with name of health officer, a report of infectious diseases for the year ending Jan. 2, 1897, reports of deaths and their causes for year ending Dec. 31, 1896, and an eighty-page appendix covering the proceedings of the seventh annual meeting of the State Board and local boards, held in Columbus, Jan. 21 and 22, 1897.

Transactions of the Medical Society of Virginia. Paper. Pp. 290. Richmond: 1897.

This volume covers the proceedings of the twenty-eighth annual meeting of the Society, held at Hot Springs, Va., Aug. 31 and Sept. 1 and 2, 1897, and contains twenty-two papers presented to the Society, general discussions, obituaries, list of presidents and vice-presidents, with statistic data of value to the physician. An appendix contains a biographic register of Fellows of the Society.

Transactions of the Medical Association of Georgia. Cloth. Pp. 535. Atlanta: 1897.

The volume is on excellent paper and of good typography and workmanship. The contents comprise the proceedings of the forty-eighth annual session, held at Macon, Ga., April, 1897. Among the forty-four papers printed we notice: "Enterocolitis of infancy," "Blue pyoktanin in the treatment of inoperable malignant growths," "Morphin and its effects," "Atropin poisoning," "Eucain, with report of a case," "Dermoid cyst of bladder," "Meddlesome instrumentation in urethral disease."

Sir James Young Simpson. By H. Laing Gordon. New York: Longmans, Green & Co. 1897.

This is the third volume of the series of "Masters of Medicine," and the subject is in every way a worthy one. Sir James Simpson's works have always been read with admiration in America, and the older members of the profession owe much to those unrivaled "Lectures on the Diseases of Women," published by Blanchard and Lea in 1863, which had such a wide circulation here. The enumerated list of titles of his works in the Surgeon-General's "Index Catalogue" is prodigious in number and scope. Dr. Gordon has given us a faithful biography of this remarkable man, and it is one of the most interesting volumes of the series so far printed.

NECROLOGY.

Edward Constant Seguin, M.D., who died at his home in New York City, February 19, was the only child of the late Edward O. Seguin, M.D., whose brother, father and several relatives of the same name were physicians, chemists, engineers and architects. Born in Paris, France, in 1843, he was brought to America with his father, who in 1850 took up his residence in Cleveland, Ohio, at which city and in Portsmouth, of the same State, he received both a public and high school education. In 1861, then living at Mount Vernon, N. Y., he began the study of medicine with his father, and after a three years course at the College of Physicians and Surgeons, New York, was graduated in 1864. During this time he acted as dresser in the hospital steamship of the United States Sanitary Commission in the Pamunkey and James Rivers and served as a medical cadet of the regular army until 1864. From September, 1864, to June, 1865, he was an acting assistant surgeon, U. S. A., and during the last two months an assistant surgeon, U. S. V. Afterward he became a member of the house staff of the New York Hospital for the usual term of two years. In consequence of the development of pulmonary trouble, he was by courtesy of the then Surgeon General assigned to New Mexico and there served as post surgeon at Forts Craig and Selden. In the summer of 1869 he returned to New York with his health apparently completely restored. Soon after the opening of the Connecticut Hospital for the Insane, Dr. Seguin was appointed pathologist for the same and so continued for about ten years. The winter of 1869-70 was spent by him in Paris under Brown-Séquard, Charcot, Ranvier and Cornil, but upon his return to New York he took up general practice instead of his intended specialty. From 1871 to 1885 Dr. Seguin was a lecturer on diseases of the spinal cord, and in 1873 founded the Clinic for Nervous Diseases in the College of Physicians and Surgeons, New York. Between 1882 and 1893 he was in Europe several times, but resumed the practice of his specialty whenever he was in New York. His popularity was great and his fees ample. His literary work was limited to monographs of more or less excellence, but compensation was had in the acuteness of his diagnosis and the felicity of his diction. He was a member of many societies in both hemispheres and often spoke with satisfaction of his relations with the various neurologic societies. He leaves a second wife but no children. His death was due to cirrhosis of the liver.

William T. Elmore, M.D., Dartmouth, 1888, died from pneumonia in New York City, February 12, aged 44 years. His birth-place was Montgomery, Ala. He went to New York fifteen years ago.

Conant Sawyer, M.D., Albany, N. Y., 1865, died at his home in Auburn, N. Y., February 21, after a week's illness from pneumonia. He was physician of Auburn Prison for ten years, having come from Ausable Forks. Besides being a member of several organizations he was identified with the American Medical Association and a founder of the New York State Medical Association.

Gamaliel Gillis, M.D., N. Y. University Medical College, 1885, of Montague Bridge, Prince Edward Island, Canada, died January 4, aged 45 years.

Ennis I. Geraghty, M.D., formerly a house physician of St. Vincent's Hospital, died at his home in New York, February 18, aged 23 years.

Lewis French, M.D., N. Y. University Medical College, 1883, died January 27, at his home in Noroton, Conn., where he was a member of the hospital staff of the Soldiers' Home.

Daniel Campbell, M.D., died at Saxton's River, Vt., Feb. 3, aged 77 years. He was graduated from the Vermont Medical College at Woodstock in 1842, and from the Berkshire Medical College, Pittsfield, Mass., in 1843. He practiced in Pittsfield, was in Westminster ten years, and since 1854 had lived at Saxton's River. He was a member of the Legislature in 1864, and was a nominee for Congress in the Second District, in 1880.

John S. Isham, M.D., Bellevue, N. Y., 1874, died in Cleveland, O., February 10, aged 50 years.——Montague L. Boyd, M.D., Savannah, Ga., of blood poisoning contracted in performing an operation, February 9, aged 48 years.—— D. B. Collins, M.D., St. Peter, Minn., February 14.—T. P. Crutcher, M.D., Nashville, Tenn., February 13, aged 68 years.——Frederick B. Gould, M.D., Kent, N. Y., February 13, aged 38 years.——John P. Hillegas, M.D., Philadelphia, February 12. ——T. P. McCullough, M.D., Fort Wayne, Ind., February 18, aged 75 years.——Oscar A. Menocal, M.D., Washington, D.C., February 9, aged 28 years.——Hiram L. Spicer, M.D., Baltimore, Md., February 12.——Jonathan S. Whitaker, M.D., Millville, N. J., February 14, aged 75 years.——Lewis R. Hurlbutt, M.D., Yale, 1850, of Stamford, Conn., February 14, aged 78 years.——James Wilkinson, M.D., College of Physicians and Surgeons, N. Y., 1858, died in Jersey City, N. J., February 17, aged 61 years.——Heinrich N. Hahn, M.D., St. Paul, Minn., February 22. He was graduated from the University of Marburg, Germany, in 1874.——Sylvester C. Ham, M.D., Auburn, Ill., February 22, aged 46 years.

John G. Truax (*vide* Journal, p. 507).

Whereas, We the members of the Medical Board of the Harlem Hospital, have learned with deep regret of the death of our late associate, Dr. John G. Truax,

Resolved, That we record our recognition of the value of his services in the establishment, due largely to his untiring energy, of the Harlem Hospital, the organization of which was his work.

Resolved, That we hereby desire to express our appreciation of his manliness and decision of character, his high sense of professional honor, and the zeal and ability shown by him in the practice of the profession which he loved.

Resolved, That a copy of these resolutions be sent for publication to the *New York Medical Record*, *New York Medical Journal*, to the Journal of the American Medical Association, and to the widow of Dr. Truax.

[Signed] J. T. Joseph Bird, M.D., Sec.

Deaths in the Profession Abroad.—Dr. P. di Pietra Santa, aged 77. A notable and picturesque figure in Paris, founder of the Société d'Hygiène and editor of its journal, prominent in every phase of the progress of hygiene, author of numerous studies on climatology, influence of warm climates on tuberculosis, etc., and one of the earliest partisans of cremation. "Born in Corsica, he was related to Bonaparte, and when he first settled in Paris was physician and secretary to the old king, Jerome of Westphalia, and later to his son, Prince Napoleon." He had many friends in America and the *Journal d'Hygiène*, under his able editorship, was greatly respected and admired.

SOCIETY NEWS.

Chicago Medical Society.—A clinical meeting was held Feb. 23, 1898, with the President, Dr. Fernand Henrotin, in the Chair. Dr. Daniel R. Brower exhibited four cases of exophthalmic goiter in a family of six children. The four children had tachycardia, pulsating goiters, and one of them marked exophthalmus. Dr. G. W. Johnson exhibited a case of tabes dorsalis with Charcot's ankle joint. The man was 45 years of age, single, and a sail-maker by occupation. He gave a history of having had a chancre sixteen years ago, also of a second syphilitic infection seven years ago. He also exhibited a case of syringomyelia. The patient was a Swede, 39 years of age, unmarried, and a molder by occupation. Dr. L. D. Baldwin showed a Chinaman with an ulcerative syphilitic process on the face. Dr. N. Senn presented two cases in which transcapular amputation was performed for periosteal sarcoma. Dr. E. E. Ochsner showed a case of compound comminuted fracture of patella because of the good result obtained by the use of chromicized catgut sutures. Dr. Moreau R. Brown exhibited an apparatus for washing instruments and heating sprays. Dr. Elbert Wing showed specimens from a case of intussusception. Dr. A. J. Ochsner showed a specimen illustrating the condition of appendicitis obliterans. He also exhibited multiple fibroids of the uterus. Dr. F. E. Chandler exhibited a monstrosity.

Illinois State Medical Society.—The forty-eighth annual meeting will be held in Galesburg, May 17, 18 and 19, 1898. The preliminary program announces addresses by Drs. J. H. Etheridge and N. Senn of Chicago, and J. W. Pettit of Ottawa. The following papers are also announced:

"Malnutrition in Infants," Frank P. Norbury of Jacksonville; "Infantile Scurvy," Isaac A. Abt of Chicago; "Tumor of Lung," Frank Billings of Chicago; "Diagnosis of Pleurisy with Effusion," Jas. B. Herrick of Chicago; "Etiology and Pathology of Pleurisy with Effusion," Ludvig Hektoen of Chicago; "Treatment of Pleurisy with Effusion," T. J. Pitner of Jacksonville and L. T. Taylor of Springfield; "Case of Patent Ductus Botalli," Frank S. Johnson of Chicago; "Chelidonium Majus in Inoperable Carcinoma," C. C. Hunt of Dixon; "Acute Tonsillitis," P. C. Thompson of Jacksonville; "The Presence of the Smegma Bacillus in the Urine and its Staining Qualities," J. L. Miller of Chicago; "Case of Brain

Disease," W. M. Friend of Sumner; "A Positive Antidote for Strychnia," L. R. Ryan of Galesburg; "Epileptics," J. B. Maxwell of Mt. Carmel; "Remarks on the Treatment of Neurasthenia," Hugh T. Patrick of Chicago; "Diabetic Gangrene," N. S. Davis, Jr., of Chicago; "Significance of the Diastolic Murmur in Diagnosis of Aortic Insufficiency," B. W. Sippy of Chicago; "A Pharmacologic Study of the Action of Digitalis on the Mammalian Heart and Circulation," S. A. Mathews of Chicago; "Modified Milk," J. S. Churchill of Chicago; "Summary of Laws Governing Medical Practice in other States," Julius Kohl of Belleville; "Defects of the Laws of this State Governing Medical Practice," G. N. Kreider of Springfield; "What Should be the Law in this State?" H. N. Moyer of Chicago; "Advantages of Separating the State Board of Health from the Licensing Board," L. R. Ryan of Galesburg; "Summary of Laws Governing Expert Testimony in other States and Countries," J. O. DeCourcy of St. Libory; "Defects of Laws Governing Expert Testimony in this State," Sanger Brown of Chicago and F. P. Norbury of Jacksonville; "The Ontlines of a Law that would Remedy the Defect," D. W. Graham of Chicago; "The Legislation Necessary to Promote Better Sanitation Throughout the State," J. A. Egan of Springfield; "Labor in Fat Women," J. B. DeLee of Chicago; "Repair of Bones," H. C. Fairbrother of East St. Louis: "Surgical Treatment of Cavities in Pulm. Tub." H. M. Thomas of Chicago; "Straits of Early Life," J. O. DeCourcy of St. Libory; "A Contribution to the Surgery of Accidental Wounds of the Knee Joint," D. A. K. Steele of Chicago; "Cynovitis; Remarks on Treatment," C. W. Sibley of Fairfield; "Treatment of Minor Surgical Injuries with Especial Reference to Bandaging," J. J. Connor of Pana; "Laminectomy in Pott's Disease," A. H. Ferguson of Chicago; "Urinary Fistulæ," Wm. Cato of Decatur; "Early Operation for Uterine Cancer," F. H. Martin of Chicago; "Congenital Phymosis and Some of its Effects," Ed. C. Lemen of Alton; "A Substitute Operation for Resection in Certain Extensive Injuries to Intestinal Wall," E. C. Dudley of Chicago; "My Name is Appendicitis," Emma B. Standley of Alexis; "Path. Histology of Intestinal Anastomosis," J. Frank of Chicago; "Atrophic Rhinitis," E. T. Dickerman of Chicago; "A Case of Extra-Uterine Pregnancy," O. B. Will of Peoria; "Diagnosis of Pulmonary Cavities with Special Reference to their Surgical Treatment." R. H. Babcock of Chicago; "Surgical Shock," Robert A. Kerr of Peoria; "Interesting Cases of Mastoid Disease," Norval H. Pierce of Chicago; "Report of Cases of Cæsarean Section," A. McDiarmid of Chicago; "Toxemia of Pregnancy," J. T. McAnally of Carbondale; and papers by W. R. McLaughlin of Jacksonville and A. C. Corr of Carlinville.

American Laryngological, Rhinological and Otological Society.—The meeting of the Southern Section of the American Laryngological, Rhinological and Otological Society will be held in Atlanta, Ga.; March 28, 1898.

Preliminary Program: Address by the Chairman, A. W. Calhoun of Atlanta; "Labyrinthine Vertigo," John Hey Williams of Asheville, N. C.; "Chromatic Audition," J. L. Minor of Memphis; "Report of a Case of Hemorrhage after the Removal of Adenoid Vegetations," Ross P. Cox of Rome, Ga.; "Hypertrophy of the Lingual Tonsil, its Symptoms and its Treatment," D. A. Knyk of Richmond, Va.; "Thrombosis of the Lateral Sinus, Dependent upon Suppurative Otitis Media," E. B. Dench of New York; "Othematoma and Perichondritis of the Auricle," John O. McReynolds of Dallas, Texas; "Tracheotomy for Foreign Bodies in the Air-passages, Report of Twenty-seven Successful Cases," Willis F. Westmoreland of Atlanta; "Empyema of the Accessory Nasal Cavities," Ruffin A. Wright of Mobile; "The Influence on Development of the Nervous System of the Child by Adenoid Vegetations in the Nasopharynx," E. P. Sale of Memphis; "Nasal Fibromata, with Report of Cases," L. M. Crichton of Atlanta; "A Form of Primary Nasal Diphtheria," E. C. Ellett of Memphis; "The Importance of Examining the Nose in Troublesome Coughs," A. C. Palmer of Richmond, Va.; "Intubation of the Larynx for Membranous Stenosis," Bernard Wolff of Atlanta; "Mouth Breathing," Norburne B. Jenkins of Knoxville, Tenn.; "Mental Disturbance in Turbinate Hypertrophies or Nasal Stenosis," John F. Woodward of Norfolk, Va.; "A Discovery in the Physiology of the Ear," W. F. Cole of Waco, Texas; "Middle Ear Catarrh, Some Original Deductions," Maury B. Stapler of Macon, Ga.; "Ethmoiditis and Report of Case." B. F. Travis of Chattanooga; "Mastoid Inflammation, with a Report of Two Interesting Cases," T. E. Mitchell of Columbus, Ga.; "Mouth Breathing in Children, Particularly as a Result of Adenoids," Arthur G. Hobbs of Atlanta; "The Nasopharynx in Laryngeal Diseases," N. C. Steel of Chattanooga; "Cholesteatoma of the Mastoid Antrum," S. L. Ledbetter of Birmingham, Ala.; "Diseases of the Accessory Sinuses," Alex. W. Stirling of Atlanta; "Clinical Miscellanies from Private Practice," Frank M. Mullins of Fort Worth, Texas; "Empyema of the Accessory Sinuses of the Nose," Frank M. Hanger of Staunton, Va.; "A Good Hemostatic after Nasal Operations," L. B. Grandy of Atlanta; "Hypertrophic Rhinitis and its Treatment," F. J. Hill of Memphis; "The Serum Treatment of Ozena," W. E. Campbell of Atlanta; "Peritonsillar Abscess," Dunbar Roy of Atlanta.

All the hotels have given reduced rates and a large meeting is expected. The profession is cordially invited.

DUNBAR ROY, M.D., Secretary.

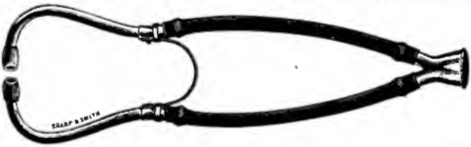
NEW INSTRUMENTS.

AN IMPROVED STETHOSCOPE.

BY F. W. MERCER, M.D.

CHICAGO.

In the stethoscope here illustrated an attempt has been made to combine the desirable features of a number now in use. The advantages claimed are increased clearness and distinctness of sounds transmitted; its lightness and the ease by which the whole instrument can be made aseptic. In its construction only thin and hard German silver tubing should be used, the chest piece being of the same material. The bell, or chest piece, differs to a degree from existing forms in having the bifurcation carried down rather close to the rim and the bell itself made as short as possible. The mouth of the bell has a diameter of 25 mm. and each bifurcation has an internal diameter of 8 mm. The pure gum, antimony tubing connecting the chest piece with the ear tubes should have extra thick walls, with an internal diameter of 8 mm. The metal ear tubes made perfectly smooth within, not having screw points or rivets penetrating, to be 8 mm. internal diameter. The ear tubes are bent with the usual curve, somewhat shortened, and ear tips and all finished entirely in one continuous piece of metal, the margin of the openings turned down and inward, making a perfectly smooth surface to openings of 6 mm. diameter. The tips may, as shown in the drawing, be finished with a thin coating of celluloid. The spring is split longitudinally, giving increased elasticity. All the metal parts are finished in dead black or silver. Soft rubber hoods can be drawn over the mouth of the bell, increasing its size as desired.



MISCELLANY.

Dr. R. Harvey Reed, of Rock Springs, Wyo., has been appointed Surgeon General of the National Guard of that State, with rank of Colonel.

Skiagraphic Photometry.—With a light-proof, black paper box Biesalski determines at a glance the exact time required for radiographic exposure, by gauging the potency of the rays. The box is shaped like a cryptoscope and fits close to the eyes, with an opening at the other end for the Crookes tube. A fluorescent screen is divided into thirty-six spaces and on each space a certain number of sheets of tin-foil are fastened, also a wire figure showing the number of sheets in each space: 1 for one; 2 for two, etc., up to thirty six. The potency of the light is thus indicated at a glance by the figure on the last space through which it passes.—*Deu. Med. Woch.*, February 3.

Personal.—Dr. T. D. Crothers of Hartford, Conn., read a paper on "The Medical Side of the Alcoholic Problem" before the Alleghany County Medical Society at Pittsburg, Pa., Feb. 15, 1898.——Dr. John H. Noland of New Haven, Conn., has gone to Cuba to join the insurgents. It is understood that he is associated with two other medical men and they are supplied with a full hospital outfit to give modern aid to the modern patriots.

Vegetables a Fighting Diet.—A writer in the *London Vegetarian* evidently with a bias, says that "99 per cent. of the world's fighting has been done on farinacious food." "The Tipperary peasant of the potatoes and butter-milk days" he pits against "the modern gentleman who gorges himself with murdered cow. The Tipperary man never read bloody minded novels or cheered patriotic music hall tableaux, but he fought recklessly and wantonly. Your carnivorous gentleman is afraid of everything, including doctors, dogs, disease, death and truth-telling."

Pay of Professional Men in France.—In France, according to *Paris Eclair*, there are from 12,000 to 13,000 doctors, of whom 2500 are found in Paris and about 10,000 in the provinces. Of this number five or six only make incomes of from $40,000 to $50,000 a year, ten to fifteen make from $20,000 to $30,000 a year, 100 make, say, $10,000, 300 make from $3000 to $5000, 800 make from $1500 to $3000, while 1200 earn less than $1500 a year. Coming to the lawyers, of whom there are 3000 in Paris alone, there are not 400 of them who make as much as $2000 a year. A couple of score make incomes of $10,000 a year. It appears that when one of these advocates is made a magistrate his salary is only from $600 to $800 a year, while for the justices of the peace, all fully qualified legal practitioners, the salaries range from $400 to $600 a year. A college professor is paid from $200 to $300 a year, a lycée professor from $700 to $1000 a year. The explanation is that in France there are too many doctors, lawyers, professors and engineers turned out.

Medical Works Not Affirmative Evidence except when used for the cross-examination of experts.—In a case decided by the appellate division of the supreme court in Brooklyn, N. Y., regarding the nature of the injury received by the plaintiff, who claimed that it was progressive in tendency, the counsel was allowed to read from Professor Gross's work the statement concerning the prognosis of nerve contusions. The justice tersely ruled that "the weight of authority on that subject is to the effect that books of inductive science, within which are standard medical works, are not admissible as affirmative evidence. Otherwise, as to those which by the courts are deemed works of exact science. The Northampton tables fall within this class." There is an old case in the superior court, where the plaintiff sued for injuries to a horse, in which it was held that the well-known work called "Youatt on the Horse" was erroneously received in evidence, and in a comparatively recent case the general term of the fourth department reversed a judgment because extracts from medical books were read to the jury. There are not many cases, however, in the law reports of New York State bearing directly on this point, as the consensus of opinion is that there have been too many erroneous dogmas of both law and medicine to establish the justice of any decision.

New Periodicals; A Protest.—Nine new German medical periodicals were announced in the last months of 1897, and medical literature in other countries is almost equally prolific. Von Düring writes to the *Deut. Med. Woch.* protesting against this multiplication of professional organs and a waste of energy time and money, rendering it impossible for any one to keep an intelligent oversight of medical literature. "Each new journal," he says, "contains possibly one or two important articles during the year, but these might just as well have been contributed to some established journal. The rest of the contents: news, abstracts, etc., are found almost simultaneously in all the leading established journals." He therefore appeals to his confrères not to allow themselves to be cajoled into lending their name and prestige or contributing to these sprouting journals. If they will take Punch's advice to those about to marry: "Don't!" they will save the rest of the profession much time and money, while maintaining the dignity of science, which will inevitably be impaired by the "*Vielschreiberei*" necessitated by a host of new periodicals. And the new publications, refused the name and support of prominent members of the profession, would "die a-borning."

Rush Monument Fund.—Dr. William H. Humiston, president of the Ohio State Medical Society, has appointed the following special committee to raise Ohio's promised contribution to the Rush Monument Fund: Drs. William E. Bruner of Cleveland, E. W. Mitchell of Cincinnati, S. S. Halderman of Portsmouth. N. R. Coleman of Columbus, C. N. Smith of Toledo. This divides the State into five natural districts, and it is hoped that funds will promptly be forthcoming to show that Ohio will be second to no other State in honoring the great American physician of a century ago, who was a signer of our Declaration of Independence. Subscription lists will be promptly opened and the profession at large will be appealed to directly. Those who feel disposed to subscribe even a little to this worthy object should at once communicate with the nearest member of the committee. It should be borne in mind that our homeopathic brethren have raised between $75,000 and $100,000 for the monument to Hahnemann in Washington. Shall we publicly say we can not do as much?—*Cleveland Jour. of Med.*, February.

Effects of Modern Projectiles in Warfare.—The *Medical Press and Circular* (January 19), commenting on "Gunshot Injuries in the late Greco-Turkish War," a paper published in the *West London Medical Journal*, by Henry J. Davis, says: "Practically, only three kinds of rifle bullets were employed in the war. The Greeks used the Le Gras French rifle, with a Chassepôt lever action, and the Turks were armed chiefly with the Martini Henri, while some of the Turkish brigades had the German Mauser magazine rifle. But Mr. Davis never came across a single wound in which a Mauser bullet had become lodged. He accounts for this by stating that the terrific velocity of this bullet—it is effective at 4000 yards—is such that it passes through everything, soft parts and bones, and does not remain in the body. In consequence of this the wounds which it inflicts are much less severe than those caused by the Martini bullet, which, on the other hand, usually splinters a bone in all directions. The use of X-rays was found of service in detecting the presence of bullets. . . . In reflecting upon the facts to which attention is drawn in this paper, it would seem fair to assume that modern projectiles tend more to disable a soldier than to kill him; that is to say, he runs more chance of receiving a slight disabling wound than of being killed by a more severe one. Again, in taking into consideration the chances of life after even a severe injury, it should be remembered that these are much greater than has ever been the case before. The resources of modern surgery are such that if a man be not killed outright, the chances for the most part are all in his favor that his life will be saved. However, it would not be possible to make any forecast of the results of the killed and wounded in the next great European war; the probability, perhaps, is that the proportion of wounded would be very high, but this would doubtless largely depend upon how the troops were maneuvered, and the nature of the work which they were called upon to carry out. But with such weapons of precision now forming the 'slaying machines' of modern armies, everyone with humane feelings will earnestly hope that it will be long before the opportunity for testing these machines will arise."

Societies.

The following recent meetings are noted:

Illinois.—Chicago Medical Society, February 23 and March 2.

Iowa.—Scott County Medical Society, Davenport, February 14.

Maryland.—Baltimore County Medical Society, Baltimore, February 17.

Michigan.—Wayne County Medical Society, Detroit, February 17.

Missouri.—St. Louis Medical Society of Missouri, February 26.

Ohio.—Belmont County Medical Society, Bellaire; Lucas County Medical Society, Toledo, February 18; Muskingum County Medical Society, Signal, February 23.

Wisconsin.—Kenosha County Medical Association, Racine, February 18.

Louisville.

Jas. F. W. Ross of Toronto was the guest of Dr. L. S. McMurtry recently. A dinner was given in his honor by his host, to meet a number of the local profession. With the following he has gone to New Orleans for a brief visit: Drs. C. A. L. Reed of Cincinnati; J. M. Mathews, H. Horace Grant, Thos. Hunt Stucky and L. S. McMurtry. While in New Orleans the party will be specially entertained at Tulane University.

Smallpox.—In the southeastern part of the State at Middlesboro, there has been a severe epidemic of smallpox, affecting mostly, however, the negroes and poorer whites. There have been a number of cases and the epidemic does not seem in the least abated. The Secretary of the State Board of Health has submitted a report of a personal observation to the Board and to the Governor. The Board has issued a circular of instructions requesting that everybody be vaccinated at an early day.

Detroit.

At the Detroit Medical and Library Association, February 21, Dr. A. M. Phelps of New York, held a clinic under the auspices of the Association at Harper Hospital before the members of the medical profession of this city, and demonstrated the technique of the Phelp's operation. Three cases of clubfoot were treated. The first case was that of talipes varus in a child of 5 years. The second was that of a young lady of 16 years suffering from double talipes equinovarus. She had been operated on four or five times by multiple tenotomies. The tendo Achillis had been cut across at the usual point twice, and a high tenotomy had been made close up to the commencement of that tendon. There were scars on the inner side of the foot showing other tenotomies. The third case was that of a child only two months old with double talipes varus. The doctor laid great stress on the importance of thorough division and open incision. He pointed out that the inner side of the foot was much shorter than the outer side, and advised manipulation of the foot to bring the tendo Achillis upon the stretch and quite tense, then the puncture should be made with a sharp-pointed tenotome and the section completed with a blunt instrument; then with the force required bring the heel on a level, or preferably below the level of the sole of the foot; then put the fascia, the muscles and tendons all upon the stretch and make an incision from a little in front of the internal malleolus obliquely downward, making the division of sufficient length and depth to bring the foot into the normal position. The doctor does not stop at the division of the abductor pollicis, flexor brevis, internal lateral ligament, or even artery and nerve if impossible to avoid. Dr. Phelps claims that while his operation is radical, it is the only operation after which relapses do not occur; that he has not had gangrene or sloughing from any of the 700 and more operations he has performed, and he has operated on patients all the way from a few days old to up to those of 58 years.

At the regular meeting of the Wayne County Medical Society held on the evening of February 24, Dr. J. A. Clark read a paper on "Anomalies of Albuminuria," presenting the theory that not only are there numerous cases of Bright's disease without albuminuria, but that there are examples of cases of albuminuria who even have a few casts in the urine, and are yet free from renal disease. The Doctor cited the histories of several cases in his own practice to bear out his proposition.

Washington.

Report of the Health Officer.—The report of the health officer for the week ended February 19 shows the number of deaths to have been 125, of which number 73 were white and 52 colored. The principal causes of death were: Diseases of the nervous system, 15; circulatory, 14; respiratory, 47. There were 2 fatal cases of diphtheria, 3 of typhoid fever, 2 of whooping cough and 1 from la grippe. At the close of the week there were 45 cases of diphtheria and 42 cases of scarlet fever under treatment.

Medical Society.—At a meeting of the society held on the 21st inst., the Committee on Public Health made a report on "The Water-Supply and Sewerage of Washington and Reclamation of the Anacostia Flats." The meeting was called to order by the president, Dr. S. C. Busey, who gave a résumé of the work done by the society and his Committee of the Board of Trade toward securing legislation for purification of water and sewage disposal; he also referred to the valuable scientific work done by the society in this connection. In closing he said: "All these efforts have been futile and the city remains today the prey to a single preventable disease which has cost its citizens in loss of life and actual outlay in the last ten years more than would have been required to complete the systems of water extension and purification and sewage disposal." Dr. G. W. Johnston, the present chairman of the Committee on Public Health, submitted a partial report of the work done by his committee. He discussed water-supply and filtration from a scientific and financial point of view. Among other things he said: "The Potomac River, above the take-in, is one vast sewer for the reception of all sorts of industrial waste, and the offal and sewage of comparatively large communities. The distance is such that it is to some extent diminishing these dangers. We find that in the past seventeen years 2539 persons died in Washington from typhoid fever, making an average of 145.35 per year." The discussion was made further valuable and instructive by the remarks of Drs. George M. Kober and Kinyoun. The subject was continued for discussion at the next weekly meeting of the society.

Cincinnati.

The Mortality Report for the week shows: Stillbirths, 7; zymotic diseases, 10; phthisis pulmonalis, 14; other constitutional, 13; local, 63; developmental, 7; violence, 5; total, all causes, 112; annual rate per thousand 14.38; preceding week, 122; under one year, 23; between one and five, 10; corresponding week, 1897, 101; 1896, 148; 1895, 128.

The damage suit against Dr. C. D. Palmer as the result of his leaving a part of a broken needle in the abdominal cavity of a woman was last week decided in favor of the Doctor. The defense was that Dr. Palmer exerted every effort to find the broken point of the needle and only gave up the search when the anesthetizer warned him that the patient was in such a condition that it was not safe to further prolong the administration of the anesthetic. The needle, when found by another operator some time after, was completely encysted.

At the Academy of Medicine Dr. B. F. Lyle presented a paper entitled "What Treatment Shall we Adopt for Pulmonary Tuberculosis?" The author reviewed the various methods of treatment and as to the prognosis said that as a general rule patients who improve in weight and whose temperature is never above 100, offer hope of recovery, while in those whose temperature never exceeds 99, we may feel almost positive of success. The author has failed to obtain satisfactory results from either tuberculin or a solution of nuclein, and he claims that the nutrition is the foundation of the reparative process. The indispensable value of the open-air life is shown by the experiments of Trudeau, who successfully inoculated rabbits with bacillary matter. Some were allowed their freedom and others confined. The former recovered without any trace of the disease remaining while all the latter died. In thirty-eight cloisters in France, of 2099 deaths 1320 were from tuberculosis, a percentage of 62.88. In the Alabama Insane Asylum, 28 per cent. of the whites and 42 per cent. of the blacks succumbed. Of the persons confined the prisons of Austria, 60 per cent. died from tuberculosis, while but 15 per cent. of those living without perished from the same. In Denver, in 1896, sixty-four unimported consumptives who were living in unfavorable hygienic surroundings died. The importance of having the air-passages free and unobstructed was emphasized. The food selected should be rich in nitrogen, hence meats should be the staple article of diet. Alcohol is avoided, as its rapidity of oxidation leads us to suppose that the same criticism might be made of it as of cod-liver oil, viz., that its affinity for oxygen would result in deficient oxidation of the by-products of tissue metamorphosis. In large quantities its use is condemned as positively injurious, as it forms with the hemoglobin of the red blood corpuscles, a compound which takes up and parts with oxygen less readily than normal hemoglobin, thus leading to a general diminution of the metabolism of the body. It also exerts an inhibitory action on the formation and functions of the leucocytes and other corpuscular elements of the blood and tissues. The elimination of alcohol by the lungs also increases the bronchial catarrh; the heart's action is weakened through fatty degeneration; the nervous system is benumbed, and the numerous other functional and pathologic conditions produced antagonistic to the well-being of the patient. Of the medicinal agents usually employed, the author has found creosote of benefit in some cases, when it undoubtedly lessened the cough, diminished the secretion and aided in increasing the general nutrition. Iron, quinin and strychnia (the dose of the latter pushed to the physiologic limit) is recommended, while sponge baths, phenacetin and quinin should be resorted to as antipyretics. Bromid of potash in ten grain doses every two hours will often be found efficacious in controlling the harassing cough. Intratracheal injections have been very satisfactory and the following formula is recommended:

R.	Mentholi	3.00
	Camphoræ	2.00
	Ol. eucalypti	3.00
	Guaiacoli	0.50
	Liq. alboleni.	100.00

About 5 drams or 20 c.c. of this should be used. For troublesome night sweats agaricin in 1-10 grain doses is efficient.

Health Officer Withrow has presented his annual report in which he gives the total number of deaths during the year, 5,565. The annual rate per thousand being 13.7. As a result of the establishment of a city laboratory and more active quarantine and supervision of cases of diphtheria, the mortality has fallen from 23.8 in 1896 to 15.9 in 1897. The public markets have been much improved in their sanitary condition. The number of deaths from tuberculosis, 675, is a decrease of 62 over that of last year and is the lowest mortality of any year since 1878. This reduction is in a large measure due to the wider dissemination among the people of the belief in the contagiousness of the disease and the recent commendable practice of sending all tubercular patients from the Cincinnati Hospital to the branch hospital. The excellent work done in the milk department is detailed at length. A list of the houses in which infectious and contagious diseases are reported is sent each day to the Public Library in order that the books coming from such houses can be properly disinfected. As to the fumigation and disinfection of houses the Trillat autoclave apparatus for the generation of dry formaldehyde gas has been adopted and found the most satisfactory. The number of deaths from typhoid fever is 101, the lowest since 1879. The strongest plea is made by Dr. Withrow for the erection of an isolation hospital for contagious and infectious diseases of children, the boiling and filtering of all water used for cooking or drinking purposes; the instruction of the school teachers in the use of the clinical thermometer and the first symptoms of infectious diseases in order that they may be able to detect cases before they have progressed far enough to compel the child to remain home; the closer supervision of the public dumps, and a greater number of parks or breathing spaces for the poorer classes.

CHANGE OF ADDRESS.

Chase, A. F. From Philadelphia, Pa., to Perryton, Ohio.

Diemert, J. A. From 109 Ontario Street, to cor. St. Clair and Wilson Avenue, Cleveland, Ohio.

Halvarson, K. K. From Minneapolis to Audubon, Minn.

Maglvit, L. From 1280 Lincoln Avenue to cor. Southport and Belmont Avenue, Chicago.

Payne, A. F. From 441 North 13th Street to 208 North Sixth Street, Terre Haute, Ind.

Searle, C. H. From 166 North Avenue to 89 Roslyn Place, Chicago, Ill.; Stone, W. C. From 482 Bowen Avenue to 615 56th Place, Chicago, Ill.

Westlake, J. A. From 913 New York Avenue to 515 F. Street, N. W. Washington, D. C.; Woodward, A. P. From 11 Powell to 1220 Sutter, San Francisco, Cal.

LETTERS RECEIVED.

Anderson, Warren E., Penssacola, Fla.; American Therapeutic Co., New York, N. Y.; Atkinson, W. B., Philadelphia, Pa.

Brumbaugh, G. M., Washington, D. C.; Brothers, S. F., New York, N. Y.

Castle & Co., Wilmot, Rochester, N. Y; Cokenower, J. W., Des Moines, Iowa; Cobb, F. C., Boston, Mass.; Cossitt, W., South Milwaukee, Wis.; Connor, Leartus, Detroit, Mich.; Castleman, A. L., Mercur, Utah.; Collins, G. L., Providence, R. I.

Drake & Mueller, Chicago, Ill.

Earles, W. H., Milwaukee, Wis.

Hare, H. A., (2) Philadelphia, Pa.

Johnston, Collins H., Grand Rapids, Mich.; Jayne, W. A., Denver, Colo.; Johnson & Johnson, New York, N. Y.

Kitzmiller, J. E., Kansas City, Mo.; Klebs, Edwin, Chicago, Ill.

Lamb, D. S., Washington, D. C.

Mastin, C. H., Mobile, Ala.; Mills, H. B., Philadelphia, Pa.; McDaniel, E. D., Coy, Ala.; Mills, Chas. K., Philadelphia, Pa.; McEwen, P. C., Detroit, Mich.; Morehouse, George, Sparta, Ohio; Milliken, Jno. T. & Co., (2) St. Louis, Mo.; May, W. H., Syracuse, N. Y.; Montgomery, E. E., Philadelphia, Pa.

Norwich Pharmacal Co., Norwich, N. Y.

Ohmann-Dumesnil, A. H., (2) St. Louis, Mo.

Porter, D. R., Kansas, City, Mo.; Putnam, H. C., Providence, R. I.; Phenique Chemical Co., St. Louis, Mo.; Parkinson, W. B., Logan, Utah.; Pilling, Geo. P. & Son, Philadelphia, Pa.

Reed, R. Harvey, Rock Springs, Wyo.

Sweet, C. L., Boise, Idaho; Sauer, Anton, Tipton, Mo.; Stevens, S., Coloma, Mich.; Sternberg, Geo. M., Washington, D. C.

Tiffin Book Bindery, (2) Tiffin, Ohio; The Welch Grape Juice Co., Watkins, N. Y.

Union Pacific System, St. Louis, Mo.

Voje, J. H., Oconomowoc, Wis.; Van Houten & Ten Broeck, New York.

White Rock Mineral Spring Co., Waukesha, Wis.; Wescott, C. D. Chicago, Ill.; Waxham, F. E., Denver, Col.; Wedding, S. J., Sulphur Springs, Ky.; Washburn, W. H., Milwaukee, Wis.; Whelan, J. M., Birmingham, Ala.

PAMPHLETS RECEIVED.

Antitoxin Treatment of Tuberculosis; Microscopic Proof of a Curative Process in Tuberculosis, or the Reaction to Tuberculin Evidenced by Blood Changes Hitherto Unrecognized; Favorable Results of Koch's Tuberculin Treatment in Tubercular Affections that are not Pulmonary. By Charles Denison, Denver, Colo. Reprints.

Barber Shop, Dangers of the. By Henry A. Robbins, Washington, D. C. Reprinted from Maryland Med. Jour.

Cholera, Arsenization Method of Treating. Senate Document, No. 111, 2d Session 55th Congress.

Coma, Difficulties in Determining the Causes of. By J. T. Eskridge, Denver, Colo. Reprinted from Annual Report of Colo. State Med. Society. Mushroom Poisoning, Observation on Recent Cases in the District of Columbia. Circular No. 13, U. S. Dep't of Agriculture, Division of Botany.

Lumbar Nephropexy Without Suturing; A New Incision for Arthectomy, Resection and for reduction of Irreducible Dislocation of the Shoulder Joint; A New Method of Nerve Resection for Amputation-Neuroma; Treatment of Chronic Empyema of the Antrum of Highmore. By N. Senn, Chicago. Reprints.

Report of Allegheny County (Pa.) Prison for 1897. Paper. Pp. 30. Pittsburg. 1898.

Report of St. Mary's Hospital, Rochester, Minn., for 1897. Paper. Pp. 24. Illustrated.

THE PUBLIC SERVICE.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from February 19 to 25 1898.

Capt. Paul F. Straub, Asst. Surgeon, ordered to accompany Companies A and G, Fourteenth Infantry, to Skagway, Alaska, and there take station.

First Lieut. John S. Kulp, Asst. Surgeon, ordered to accompany Companies B and H, Fourteenth Infantry, to Dyea, Alaska, and there take station.

Major Henry S. Kilbourne, Surgeon (Madison Bks., New York), is granted leave of absence for two months with permission to go beyond sea, to take effect on or about March 1, 1898.

Capt. Charles B. Ewing, Asst. Surgeon (Jefferson Bks., Mo.), is granted leave of absence for one month, to take effect on or about March 1, 1898.

Major William W. Gray, Surgeon, is relieved from duty at Ft. Apache, Ariz., to take effect upon the expiration of his present leave of absence, and ordered to Ft. Huachuca, Ariz. for duty.

Lieut.-Col. William D. Wolverton, Deputy Surgeon-General, chief surgeon Hdqrs. Dept. of the Columbia, is granted leave of absence for four months with permission to go beyond sea, to take effect on or about March 15, 1898.

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ORIGINAL ARTICLES.

AUTO-INTOXICATION IN ITS RELATIONS TO THE DISEASES OF THE NERVOUS SYSTEM.

Read before the Illinois State Medical Society.

BY DANIEL R. BROWER, M.A., M.D.
Professor of Mental Diseases and Therapeutics, Rush Medical College; Professor of Mental and Nervous Diseases, Woman's Medical School, and Post-Graduate School, Chicago, Ill.

We are at the beginning of a new era in the pathogenesis and treatment of the neural diseases. The discovery of the neuron has resulted in making clear some of the dark passages in physiology and pathogenesis, and the dynamic changes produced in these neurons by alcohol and other extrinsic poisons, that have been so marvelously demonstrated by Andriezen, Van Gieson and others, and the reasonable inference that intrinsic poisons are equally powerful in establishing pathologic conditions, open up a new line of important therapeutic investigation.

The primary form of the psychoses from the beginning has been called melancholia, "black bile," because of the relation ever recognized between mental depression and perverted action of the great viscus of the abdominal cavity, and in more modern times quaint old Abernethy emphasized the same etiologic thought when he gave utterance to the aphorism that the best medicine for the "blues" is the blue pill. That various nervous diseases are produced by alcohol, lead and other extrinsic poisons, and by the toxins of various infectious diseases, by uremia, by sunstroke and by experimental thyropravia is universally accepted, and moreover, the neuro-cellular lesions that are produced by some of these poisons have been demonstrated. Auto-intoxication includes the results of toxins that are produced within the body by normal and abnormal chemic activity, and those that follow from the suppression or disturbance in the functions of such organs as the thyroid and other glands that produce constituents necessary to healthy nutrition, and those toxins that are produced by germs in the gastro-intestinal tract and elsewhere about the body.

Albu suggests the following general classification of auto-intoxication:

1. Auto-intoxications from the suppression or disturbance of the functions of an organ, *i.e.*, auto-intoxication of thyroid gland, pancreas, liver, supra-renal capsules, producing myxedema, diabetes, acute yellow atrophy and Addison's disease, respectively.
2. Auto-intoxications which occur from anomalies in general metabolism without definite localization, such as rheumatism, gout and oxaluria.
3. Auto-intoxications which are caused by the retention of the physiologic products of metabolism in different organs, such as poisoning due to extensive destruction of the skin by burning, carbonic acid poisoning, uremia and eclampsia.
4. Auto-intoxications due to the over-production of physiologic and pathologic products of the organism, such as ammonemia, acetonuria, diaceturia, diabetic coma, Basedow's disease, etc. The most frequent source of this intoxication is the gastro-intestinal tract.

In normal digestion we have ultimately elaborated absorbable products, soluble albuminoids, emulsified fat, glucose and maltose. In indigestion we have numerous aromatic, nitrogenous and acid compounds produced that are poisonous. In the stomach the absence or diminution of free hydrochloric acid results in putrefaction, and in this viscus and in the intestines the presence of micro-organisms result in decomposition, and among the resultant toxic products thus produced we have lactic, acetic, succinic, carbonic, the aromatic and the volatile fatty acids, indol, skatol, phenol, peptinatoxin, ammonia, methan, sulphuretted hydrogen, methyl, mercaptan, etc.

The liver acts as a barrier to guard the organism against the invasion of these various poisons and may transform them into innocuous substances or eliminate them by the bile as non-absorbable chemic combinations. The skin, kidneys, bowels and lungs assist the liver in eliminating these products.

Bouchard[1] has demonstrated that the normal man manufactures enough of these several poisons each day to destroy the body if retained within it; he has separated from the urine of such a man, seven toxic substances, two of which will produce convulsions, one myosis, while one is antipyretic, one is narcotic, one is diuretic, and one is a sialagogue. The toxicity of the urine in the healthy man varies according to numerous circumstances, such as cerebral and muscular activity, sleep, diet, etc. The urines of sleep are usually less toxic than those of the waking state. The urotoxic co-efficient varies with disease; the urine of a uremic patient is not toxic, because the poisons which should be eliminated are retained. The urine in mania is less toxic and in melancholia more toxic than normal. The urine from a maniacal patient when injected into an animal will give rise to excitement and convulsions; that from a melancholiac to depression, restlessness and stupor.

Morgan[2] found abnormalties in the urine in 70.6 per cent. of the cases of insanity; such a high specific gravity, albumin, excess of phosphates, urates, uric acid and oxalates.

Agrotini[3] noticed the gastric disturbances, the hyperchloridity and the urinary toxicity with the epileptic attacks, and very wisely concludes that auto-intoxication from altered tissue change and digestive disorder has an important part in the mechanism of the attack.

Somers[4] concludes that in all cases of insanity there is a deterioration of the blood, showing a diminution of red corpuscles, an increase in white corpuscles, and a low percentage of hemoglobin; that cases of melancholia show the lowest amount of hemoglobin; the eosinophilic cells are absent in the majority of the cases, and that poikilocytosis is characteristic of this disease. That the eosinophilic cells are increased in mania, and that there is an intimate relation between an hypertrophied heart, sclerosed arteries, lowered blood nutrition and the course of mental diseases, and asks this important question, "Is it possible by the use of some drug where you increase metabolism to also increase the number of eosinophilic cells and thus free the system of the toxic influences which are supposed to be the cause of melancholia?"

Contributing to this toxemia of the brain is doubtless the peculiar arrangement of lymph channels around the blood vessels; the blocking of these channels, a pathologic condition not unreasonable, would result in auto-intoxication of this organ. The psychoses that are probably of auto-toxic origin are the manias, primary melancholias, whether acute, subacute, or chronic. The nervous diseases that have probably the same origin are neurasthenia, epilepsy, tetany, chorea, exophthalmic goiter, disorders growing out of rheumatism and gout, and probably many others.

Van Gieson[5] has demonstrated, in these toxemias, an acute parenchymatous degeneration of the neuron from which recovery, both of structure and function, may take place, provided the poison acts only for a brief period, but if the action continues, the degenerative changes eventuate in the irreparable destruction of the cell.

The gastro-intestinal tract is the theater of the most important of the operations of auto-intoxications, and the first important factor is dilatation of the stomach. Bouchard[6] has most graphically described the consequences of this pathologic condition, and it is unfortunate that our means of diagnosis in these cases are so meager. The second important factor is intestinal indigestion, and the third is coprostasis. The urine will often give important aid to diagnosis, and it should be tested for indican and the total sulphates, and will show increased ratio of the former and diminished ratio of the latter, although ethereal sulphates will be increased in auto-intoxication.

The treatment of these cases must consist in the treatment of the pathologic condition associated with it. First to be considered is the treatment of gastrectasis, and, in this, diet is of the first importance. The food must be very digestible, concentrated, so as to give least taxation to the motility of the stomach. The meals should be taken three times a day with the longest possible interval. It is necessary to avoid, as much as possible, everything that can have a tendency to undergo fermentation. Alcohol, which furnishes acetic acid, especially red wines, beers, tea, coffee, carbohydrates and fat are objectionable. The best diet would be a predigested one, peptonized milk, malted milk, somatose, especially the combinations of malted milk and somatose. The best dietary is an animal one, tender beef, mutton, fowl free from fat, eggs, fish, the smallest possible allowance of bread, peas, asparagus, tomatoes, peaches, grapes, apples and but very little water, and this should be taken hot before meals. If hydrochloric acid is deficient in the stomach contents, as it usually is, then hydrochloric acid may be administered after eating. It is without doubt the best of the stomach antiseptics; with this may be administered the simple bitters. Strychnia is also a drug of great value, because of its power to restore tone to the debilitated muscular fiber. The intragastric application of faradism, the cutaneous use of faradism and of static electricity, all alike stimulate peristalsis and promote the nutrition of the muscular coats of the stomach. Abdominal massage is also of service. Lavage is necessary in all of these cases, and it should be used daily; it can best be performed a half hour before breakfast, or dinner. The red-gum soft-rubber tube, with funnel attached, is the simplest and best apparatus; the patient can soon be taught to use it himself. The water should be warm, and with some mild antiseptic, such as sodium borate, sodium salicylate, or such as may be preferred. About a pint should be introduced at a time, and then this should be siphoned out and followed by another and another until it returns clear. It may be necessary to change the climate; a high altitude for some, a sea level for others, with freedom from care, distraction by travel, or some pleasurable occupation.

The treatment of intestinal dyspepsia calls first for purgatives, and the salines meet the indications best. The combination of sodium sulphate with sodium phosphate, four parts of the first to one part of the second, is an admirable one. The best intestinal antiseptics are beta-naphthol, benzo-naphthol, bismuth salicylate and guaiacol carbonate. Of this valuable series benzo-naphthol is probably the best, because it is but little toxic and does not irritate the kidneys. It should be administered in ½ gram doses, four times a day.

Colonic impaction is a very frequent condition in chronic invalids and is very frequently overlooked. For its relief cathartics are not sufficient. Colonic flushing, in the knee-breast position, with normal saline solution at body temperature, with abdominal massage, must be used. The flushing will frequently have to be repeated several times before the accumulations are removed. It should be followed with aloetic laxatives and intestinal antiseptics. As a rule, all of these cases of auto-intoxication will require hematinics, Blaud's mass, freshly prepared, combined with extract nux vomica and arsenic, have given me the best results.

The treatment of Albu's first class of auto-intoxications, of those due to the suppression or diminution of the secretions of some gland, suggests the question of organo-therapy, and I think we may say that the great expectations of this new therapy have not been realized. Spermin, cerebrin, medullain, cardain and all such have failed to produce the results promised; but thyroid, bone marrow and nuclein have in some cases given results that are surprising. No one can dispute the value of thyroid extracts in myxedema, cretinism, acromegaly, obesity, tetany, rosacea, ichthyosis, scleroderma, some forms of syphilis and some forms of insanity, especially the adolescent, climacteric and puerperal cases. The value of red bone marrow in certain cases of anemia seems well established, and the nucleins seem to have the power of increasing the bactericidal capacity of the blood and in anemia following infectious diseases; in gonorrhea and in tuberculosis, benefit has sometimes been obtained.

CONCLUSIONS.

1. Some of the nervous diseases are the product of auto-intoxication.

2. This autotoxis produces a parenchymatous

degeneration of the nervous system, acute or chronic, that may result in the destruction of the structure and function of the nerve cells. (Van Gieson and Andriezen.)

3. The peculiar arrangement of the lymph channels in the nervous system makes auto-intoxication of the brain possible by the blocking of these channels.

4. The principal factor in this autotoxis is a disordered gastro-intestinal tract.

5. Gastrectasis, intestinal dyspepsia and coprostasis are ordinary conditions producing gastro-intestinal intoxication

6. The diagnosis is to be made; *a*, by a regional examination; *b*, by examination of the gastric contents, and *c*, by examination of the urine.

7. The urines will show increased amounts of indican, diminished total sulphates, and an increase in the amount of ethereal or conjugate sulphates.

8. There will also be found, usually in consequence of this autotoxis, a diminished hemoglobin record and a diminished number of red blood corpuscles.

9. The treatment should consist of lavage, enteroclysis, gastric and intestinal antiseptics. laxatives and hematinics.

BIBLIOGRAPHY.

1 Auto-intoxications in disease.
2 State Hospital Bulletin, Vol. 1, No. 1, pp. 128 to 131.
3 Rev. Speremental, xxii, 1896.
4 State Hospital Bulletin, Vol. 1. No. 1. p. 82.
5 State Hospital Bulletin, Vol. 1, No. 4.
6 Auto intoxications, Lectures on, p. 150 at seq.

SURGICAL TREATMENT OF GASTRIC ULCER.

Read before the Iowa State Medical Society, 1897.

BY VAN BUREN KNOTT, M.D.

SIOUX CITY, IOWA.

Surgical interference for the relief of the ulcer of the stomach and its complications, although of comparatively recent date, has by the brilliancy of its results become a well established procedure and promises much for the future. In considering its applicability I shall be as brief as possible, dwelling only on those conditions in which it has been proven of unquestionable value. Although the radical cure of gastric ulcer has been advocated, and attempted by excision of the ulcer itself, the results have not as yet justified the adoption of this measure as the routine treatment for this condition, nor is it warranted by statistics, as according to Welch about 85 per cent. of all cases of ulcer of the stomach heal spontaneously.

Therefore, I shall in this paper consider the value of surgical interference in those cases of gastric ulcer complicated by one or more of the following conditions: Perforation, hemorrhage, cicatricial contraction and adhesions to neighboring viscera or the abdominal wall.

Perforation of a gastric ulcer is always a very serious accident and in the majority of cases the only hope for the recovery of the patient is offered by surgery. If the perforation occurs rapidly and into the general peritoneal cavity, no time having been afforded for the formation of limiting adhesions, the patient unless relieved by surgical intervention rapidly succumbs to acute septic peritonitis.

In these cases the surgeon should never hesitate, as experience has demonstrated that the successful cases are those in which the operation was performed within a few hours following perforation. Delay can mean nothing but a rapidly fatal infection.

An incision should be made in the median line between the umbilicus and the sternum, and if the stomach is not then readily accessible another incision at right angles to the first will render it so. First, locate the position of the perforation and effect its closure before attempting to remove the extravasated gastric contents.

In by far the greater number of cases closure may be best affected by turning in the peritoneal edges and retaining them in position with Lembert sutures. In some cases, owing to the diseased condition of the stomach wall, a large portion of it may require inversion. Again, a portion may be resected and the opening closed. It is extremely fortunate that perforation of ulcers of the anterior wall of the stomach is much more common than of those situated on the posterior, as in the latter case the perforation is accessible only with the greatest difficulty, if at all.

As soon as the perforation has been closed, the peritoneal cavity must be carefully cleansed of all extravasated matter, first, by dry gauze sponging and then by irrigation with large quantities of normal saline solution. Irrigation, as frequently practiced, employing three or four quarts of fluid, is worse than useless, as with such a small quantity the extravasated particles are only disseminated throughout the peritoneal cavity and not washed out. In all cases, gallons of hot normal salt solution should be used.

Following the irrigation, the peritoneal cavity should again be sponged dry and ample gauze drainage provided. If evidences of general peritonitis are already present it is well to supplement the ordinary drainage with gauze wicks placed at the most dependent portions of the cavity and carried out through incisions in the loin.

M. H. Richardson[1] has collected forty-four cases of operation for this condition, with ten recoveries. When we consider that all these would have died without operation, these results are gratifying. The same observer also states that the percentage of recoveries during the last two years was much larger than in those cases operated on before that time, indicating that the results are improving with experience.

Sometimes perforation of a gastric ulcer occurs so slowly that time is allowed for the formation of limiting adhesions and we have a localized abscess resulting. This abscess may be superficial deep or subdiaphragmatic. Weir[2] urges that left-sided pyoneumothorax with a previous history of gastric symptoms should be suspected as due to a perforated ulcer of the stomach. These abscesses should be freely opened and drained, following the technique employed in pelvic or abdominal abscesses due to other causes, and the perforation closed in the usual manner. Cases have been reported in which perforation was followed by neither general peritonitis nor localized abscess, and a complete spontaneous recovery was made, but such a fortunate termination is extremely rare.

Again, adhesion has occurred between the stomach wall and a neighboring viscus or the abdominal wall before perforation has occurred, the ulcer being thus provided with a new floor and infection prevented. The resulting adhesion, however, may occasion so much functional disturbance and pain as to necessitate an operation for its relief.

The abdomen should be opened, the adhesion found and separated and the opening into the stomach closed as indicated above. The following case illustrates this condition and is interesting from the fact that the adhesion was separated without re-opening the ulcer.

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[1] Dennis' System of Surgery, Vol. iv.

[2] Annals of Univ. Med. Science, 1893.

Case.—E. J., a female aged 32 years consulted me regarding severe gastralgia and digestive disturbance of about one year's duration. She complained of very acute abdominal pain coming on soon after eating, which was frequently attended with vomiting. Coughing, sneezing, etc., were attended by the most excruciating pain. She had been constantly under treatment for one year, her ailment being diagnosed as dyspepsia, and was almost discouraged concerning her condition. Owing to the difficulty with which food was retained in the stomach, she was extremely emaciated. Temperature was 100, pulse 85. An examination of the abdomen revealed, upon palpation, a tender indurated spot about one-half an inch above and the same distance to the left of the umbilicus. This, together with the symptoms above enumerated, led to the diagnosis of an adhesion between the stomach and the abdominal wall, with possibly the formation of an abscess. In addition to the usual preparations for the celiotomy, the stomach was thoroughly washed out. The abdomen was opened in the median line and the adhesion existing between the anterior surface of the stomach and the abdominal wall was readily found. This point was walled off from the surrounding tissues with gauze sponges and the adhesion separated, keeping close to the abdominal wall. No pus was present and the stomach wall at this point was found to be intact, the ulcer having apparently healed. The ulcerated area, however, was folded in and retained by close suturing. As no abscess existed and the stomach had not been opened the abdominal incision was closed without drainage. The troublesome symptoms immediately disappeared and, fifteen months after operation, had not recurred. The patient rapidly regained her lost weight and has since been in perfect health.

The interesting features of this case are:

1. That the ulcer should have occasioned such extreme functional disturbance and established so firm an adhesion without being attended with hemorrhage and more of the classic symptoms.

2. That after so active an ulcerative process the lesion should undergo such complete spontaneous healing that the operation revealed practically no trace of it except the adhesion and a slight induration of the stomach wall.

3. That the condition was easy of diagnosis owing to the induration which could be plainly felt and the typical disturbance of function. (Most authorities state the existence of adhesions between the stomach and contiguous structure can only be surmised without an exploratory incision.)

If, during the course of a gastric ulceration, alarming hemorrhage should occur and death seems imminent from this cause, the abdomen should be opened, the ulcerated area excised and closure effected by suturing. If for any reason this can not be accomplished the stomach must be opened and the bleeding vessel ligated.

Cicatrical contraction accompanying the healing of a gastric ulcer does not usually occasion enough trouble to demand operative relief unless the ulcer is situated at the pylorus. Contraction and cicatrization occurring at this point may, by occluding the pyloric orifice, occasion the troublesome train of symptoms consequent upon the dilatation of the stomach which ensues.

Should this occur surgical intervention is imperative. Several procedures have been advocated for the relief of this condition, but I think we may adopt pyloroplasty, as performed by Heinecke, as the operation of election and I can not conceive of a pyloric stenosis due to the above cause in which it would not be applicable.

In all operations on the stomach strict adherence to the following points is essential.

If the case be one demanding immediate interference, the feeding of the patient should be so regulated that at the time of operation the stomach will be empty and by copious irrigation the intestine rendered as free as possible from fecal matter.

Just before operating, the stomach should be thoroughly washed out. After the stomach is exposed, if perforation exists, and extravasation has occurred, before attempting to remove the extravasated material the opening in the stomach must be found and closed. The escaped stomach contents may be best removed from the peritoneal cavity by dry gauze sponging followed by copious irrigation with normal salt solution and the cavity again sponged dry.

If extravasation has not occurred such an accident must be prevented by immediately surrounding the operative field with sponges walling off the general cavity of the peritoneum.

In those cases where the perforation occurs upon the posterior wall of the stomach and is inaccessible for suturing, further extravasation must be prevented by carefully placed gauze packing. The writer has encountered such a condition twice in gunshot wounds of the abdomen.

In all cases where extravasation has occurred ample gauze drainage must be provided and if evidence of general peritonitis is present, counter openings for drainage in the loin are indicated.

Drainage must be maintained according to the requirements of individual cases. There can be no fixed rule regulating its withdrawal.

Great care must be exercised during the evacuation of a localized abscess following perforation, that its limiting walls be not broken and a general infection invited. It is recommended that these cavities be cleansed by dry sponging, as the force of an irrigating stream is dangerous.

In separating adhesions between the stomach and neighboring parts by dissection, strive to avoid opening into the stomach cavity.

If after separation the adherent area of the gastric wall appears weak, turn it in and suture.

For stomach wounds in general, the best suture, is an interrupted Lembert of fine silk. In these operations time is an important consideration and they should be rapidly performed, every detail being carefully arranged before making the incision. The after-treatment of all operations upon the stomach is of great importance. Nothing should be allowed by the mouth until the third or fourth day, all nourishment being administered by rectum. Mouth feeding when begun should be done with great care for some time, soups and broths being first given.

THE CONSERVATIVE AGENCY OF SHOCK.

Read at the meeting of the Western Surgical and Gynecological Association, at Denver, Colo., Dec. 28 and 29, 1897.

BY H. G. WETHERILL, M.D.
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Until recently, the old notions and teachings of the cause and modus operandi of surgical shock have been little modified, notwithstanding the vague and uncertain theories upon which they were based. Literally, the term surgical shock has been applied to the condition of the body which is induced by severe injuries, operating through the nervous system, not attended with or produced by hemorrhage. Profound depression and even death may be so caused, but not commonly, and even when so produced, that it is serious because of the nervous disturbance alone can not be admitted, as the secondary circulatory disarrangement is the prominent symptom presented and is also the symptom which must be combatted with the greatest vigor if the life of the patient is to be saved.

Few serious injuries or surgical operations, which are followed by so-called shock, are unattended by hemorrhage, external or concealed. The symptoms which such patients present are due to the conjoined effects of the hemorrhage and "shock" combined.

For many years it was taught that penetrating wounds of the abdomen and amputations through the hip joint were ordinarily fatal because of the profound shock which accompanied them, but later experiences have taught that with perfect hemostasis their mortality may be greatly reduced. This indicates that hemorrhage is a far more important factor in the production of what we have heretofore called shock than has been believed.

It has been usual to attribute the death of patients, upon whom abdominal operations have been performed, to the "shock" of the operation, while the autopsy has ultimately shown that the patient had died of concealed hemorrhage.

A small concealed hemorrhage may go on so slowly and insidiously as to give rise to none of the symptoms which are characteristic of hemorrhage as in contra-distinction to "shock." In such cases it will be difficult to say that the state is not one of literal shock.

The tendency now is to regard surgical shock, as a condition which follows such operations or severe injuries as exhaust the nerve force of the patient and reduce his blood pressure, through the true shock and the reflex action of the hemorrhage, the latter being considered the more important factor.

The present status is unsatisfactory and confusing and the definition and meaning of the term shock should be applied to the condition as it is now known and its double origin recognized; or if it be preferred to retain this term for its original and literal use it should be limited strictly to this meaning and some new word chosen for the description of the mixed condition which comes after injuries and operations, the genesis of which is due to both shock and hemorrhage.

The term traumatic asthenia is well suited to the description of this mixed condition and also indicates its origin.

This mixed shock has heretofore been regarded as a serious and unfavorable complication of injuries and operations. This view should also be reconsidered and modified as it is now believed, by some, that the condition is essentially conservative in its agency, that if it were not for this lowering of the vital action through and by the intervention of the reflexes the suffering of the patient would be far greater and his life more quickly sacrificed.

Recall the picture of profound shock often seen in the emergency operating room after injuries received on the railroad or in the factory. The patient is pale, with pupils dilated but with eyes closed, his skin is cold and clammy, he is pulseless or nearly so, his temperature is subnormal and he desires to be left alone and allowed to rest. He is not suffering in proportion to the severe character of his injury and is bleeding very little, not because he has no blood to lose but because it is not circulating with its usual force. Is it not evident that the conservative efforts of all nature's agents are being exercised to render his suffering and the consequent exhaustion as little as possible, and prolong his life to the full limit by lowering his blood pressure and storing the vital fluid in his dilated and relaxed blood vessels? His very condition of perfect relaxation, inability and disinclination to make exertion is his salvation.

In all diseases, under all circumstances, the tendency of the natural processes is to resist death and destruction as long as possible and by every means.

The successful treatment of disease must take into consideration the indication nature gives as to the best way to proceed. Success depends upon following these indications and supporting the resisting powers in the fight for life, for death comes not by nature's consent or assistance but always in spite of her strongest antagonism.

I believe it has not been proved by the experimental physiologist that the reflex effect of hemorrhage is to lower blood pressure and so save blood volume. That this result is attained every surgeon knows, but to what extent it is accomplished through reflex action we can not say.

The experience of every surgeon who has carefully observed the condition of his patient under and after operation will lead him to believe that there is some controlling influence exercised over the heart and the circulation of the blood by a persistent arterial hemorrhage however small in amount. The influence upon the circulation is out of all proportion to the amount of blood lost as is also the profound effect in general upon the patient, who becomes cold, pulseless and is evidently near death, perhaps to be perfectly revived, with a full bounding pulse, when the hemorrhage is arrested. Such phenomena are sometimes seen in cases of ruptured ectopic pregnancy, the patient's condition becoming decidedly better or worse with each arrest or fresh attack of hemorrhage. It hardly seems rational to doubt that these remarkable effects are the results of reflex action, or that even a small but persistent hemorrhage may induce them.

Gynecologists and abdominal surgeons are peculiarly interested in having this matter thoroughly understood, for to them the question must often come for solution whether a patient is suffering from shock or it be traumatic asthenia, with the possibility that hemorrhage is still persisting and so maintaining through its reflex effects the state of lowered vitality. The importance of this question in its bearing upon treatment is evident. If the case be one of uncomplicated shock cardiac and other stimulants are indicated, transfusion and infusion may be employed and all the vital forces be quickly brought into normal activity; whereas if concealed hemorrhage continues these remedies are contra-indicated and opposed to the conservative efforts of nature, for the more the circulation is increased in force and volume the greater must be the hemorrhage till all bleeding points are controlled.

That the balance should be in every case so nicely adjusted as to give exactly the required amount of protection is too much to expect. It must be clear that the shock or traumatic asthenia may under certain circumstances be so severe and profound that the patient can not react and recover.

Here as in other branches of medicine the personality and condition of the patient bear directly upon the result. The nervous, anemic, exhausted, old, or very young person will not withstand a degree of traumatism that would make little impression on one in the full vigor of youth.

The degree of surgical anesthesia and the length of time it is maintained must also affect the result through the obliteration of the reflexes and the consequent paralysis of nature's conservative mechanism.

The conclusions I deduce from the foregoing are:

1. Surgical shock entirely unassociated with hemorrhage is a condition rarely seen and one which may usually be successfully treated in persons who are otherwise in good health.
2. Hemorrhage though small in amount is a far more important factor in the production of surgical shock (as it is seen clinically) than we have been accustomed to think it.
3. This mixed shock (traumatic asthenia) should be designated by some distinctive title, or the term shock be construed to comprehend all the factors in its genesis.
4. While not proven it seems probable, that the effects of even a small continuous arterial hemorrhage is to produce through its reflex action lower blood pressure and in general a condition so like true shock as to be very difficult of differentiation, particularly if the hemorrhage is concealed; as in ruptured ectopic pregnancy.
5. Surgical shock, with or without hemorrhage, must be construed as primarily conservative in its tendencies. The incident prevention of rapid exhaustion, of acute suffering, or great blood loss when the blood vessels are opened, all tend to the ultimate saving of life.
6. Premature stimulation in the treatment of traumatic asthenia may defeat this conservative effort of nature. Bleeding should be stopped and proper provision made for the comfort and welfare of the patient before strong stimulation is resorted to, unless there is imminent danger of death.
7. Anesthetics must be sparingly and carefully given to patients suffering from surgical shock (traumatic asthenia), chiefly because they completely obliterate the reflexes. The saturation of the patient with an anesthetic may turn the scale against him even though the direct effect of the anesthetic be stimulant. The same rule holds good in regard to the employment of alcoholic stimulants if too freely used.
8. We should co-operate with and supplement nature's conservative efforts. They are always exercised in behalf of the patient, never against him.

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LUPUS VULGARIS—EPITHELIOMA—ACNE—ALOPECIA CIRCUMSCRIPTA—TINEA VERSICOLOR.

A Clinical Lecture to Members of the American Medical Association, delivered in the Medico-Chirurgical Hospital of Philadelphia, June, 1897.

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LUPUS VULGARIS.

The patient is 40 years of age. The disease from which she suffers began about three years ago upon the right cheek, whence it has spread toward the upper lip. There is much infiltration in the affected part, and exterior to the edges of the main patch are a number of tubercles of glutinous appearance. These tubercles project slightly above the general surface. The extensive and continuous patch upon the cheek is the result of the coalescence of many tubercles. Most of the cheek has been invaded in this manner. Upon the seat of disease are many fine scales. The development of these lesions has, from the first, been accompanied by considerable pain.

But the disease is not in active progress in all parts. Upon the cheek are several cicatricial spots. I know, therefore, that however chronic, disfiguring or deep this ulceration, it can not be of malignant character. Epithelioma never exhibits these cicatricial spots intermingled with slow, progressive ulcers. These features, in connection with the intact tubercles along the principal lesion are characteristic of lupus vulgaris. In other words, in lupus vulgaris we usually perceive coincidently different stages of the malady. The primary lesion is a papule or tubercle, deeply imbedded in the corium and visible at first as reddish, brownish or yellowish spots. The lesions are due to an infiltration of small cells, which in time undergo fatty degeneration and may be absorbed. In other spots ulceration occurs and may continue indefinitely or may cicatrize in certain spots. Now, all this process of evolution, involution, ulceration and cicatrization constitutes a totally different clinical picture from that of epithelioma. Upon an attentive study of cases we should rarely err in diagnosis. This is a typical case of lupus, but there are inveterate cases in which ulceration penetrates to or even involves the bone and such are very apt to be mistaken for cancer.

In this patient the butterfly arrangement of the lesions is absent, as indeed it generally is in lupus vulgaris. That symmetry of outline is far more indicative of lupus erythematosus. The age at which the patient was attacked is also exceptional.

In some cases the infiltration involves the papillæ of the skin, which become immensely enlarged and sprout forth as wart-like elevations. This form of the affection is known as lupus verrucosus. Lupus generally attacks the face, though it sometimes appears upon other parts of the body.

The etiology of this disease has been the theme of much discussion. It is now looked upon by some as an attenuated form of cutaneous tuberculosis, although it is admittedly of a different clinical type from other forms of tuberculosis and the lesions contain few bacilli. As a general rule, the subjects of lupus enjoy fairly good health. In some instances they develop pulmonary tuberculosis.

Lupus vulgaris is liable to be mistaken for the tubercular or some of the ulcerative lesions of later syphilis. The former, however, is usually limited to the face. The tubercles of syphilis appear upon various parts of the body and display a characteristic coppery color. The ulcers of lupus have a tendency to coalesce; those of syphilis are most often isolated. Syphilitic ulcers are attended by abundant foul suppuration and covered by greenish crusts. Syphilitic ulcers are more rapid in their course than those of lupus and the cicatrices of syphilis are white and smooth. Lupus scars are an unsightly disfigurement.

The treatment of lupus depends much upon the general condition of the patient. The food should be digestible and nutritious. If scrofulous or tuberculous manifestations are present appropriate remedies should be ordered. Other impairment of the system must be treated upon general principles. Cod liver oil is an excellent remedy and shall be given in this case. The patient feels weak although she has not lost much flesh. She shall also be placed upon arsenic in the form of sulphid, beginning with 0.006 ($\frac{1}{10}$ grain) and running up to 0.016 gram (¼ grain) three or four times a day.

I do not favor harsh local measures, as I have known them to be followed by systemic implication. An effective application to the lesions is pure liquefied carbolic acid, used twice a week. In the interim a weak carbolic acid ointment may be kept upon the parts.

EPITHELIOMA.

Our next patient is a man, aged 68 years. He also has an ulcer upon the cheek. This lesion is about the size of a five cent piece, of a nearly circular outline with hard, everted edges, of dark red and granular surface. It is the seat of much pain and bleeds upon slight provocation. Some thick, yellowish secretion covers its surface. It has been in existence for seven months and in the beginning had the appearance of an innocent wart, as far as the patient could judge.

These seeming warts, these dry fissures surrounded by a thickened and hardened nodule, are always suspicious matters in people above 60 years of age. We have here an epithelioma. It is of the utmost importance to recognize this disease at an early moment. If allowed to progress it will infallibly contaminate the blood and proceed to a fatal termination. Yet, of all the forms of cancer, cutaneous epithelioma is the most amenable to early and judicious treatment. We may excise the growth *in toto*, together with a large surrounding area of healthy tissue; we may destroy it by chemicals or electricity. We may seek to attain the same object by the interstitial injection of alcohol, the application of methyl blue, etc. If the disease has caused deep ulceration before coming under our care and if adjacent lymphatic glands are involved we are often powerless to do more than alleviate symptoms as they arise. Total excision with a plastic operation to replace tissue removed succeeds in a certain proportion of cases. Nevertheless, there are many patients on whom, for some reason we may not practice radical surgery. The one before us is a case in point. The man absolutely refuses to submit to the knife. I propose, accordingly, to pursue a course which has sometimes given me a favorable result and which is always worth a trial in selected cases. This, I think, may be considered appropriate for the experiment. I refer to the topical use of abrus, jequirity or wild liquorice. This substance, if I may judge from recorded literature, is chiefly employed by the oculists in granular lids or trachoma. It is an energetic irritant, the virtue of which seems to depend upon the presence of a special ferment. An infusion or emulsion of jequirity is a most vigorous stimulant to old and sluggish ulcers. From this fact I was led to make use of it in certan cases of epithelioma. Although the ulcer in this case is rather large and deep there is no decided glandular enlargement and it seems possible that it may prove amenable to this method. The application causes excessive inflammation in from ten to forty-eight hours. There is enormous swelling with formation of a hard crust and free suppuration. In the course of a week or less the discharge decreases, the crust loosens or falls, and the exposed surface is seen to be the seat of healthy granulations. In some cases of epithelioma the use of this substance has been followed by complete recovery. In the hope that so happy a result will occur in the present case I will make the application.

ACNE.

The next two patients exemplify two phases of an exceedingly common disease, especially among young people, and one which is often very unamenable to treatment.

The first case is that of a lad, 19 years of age, upon whose forehead and cheeks are scattered red, isolated papules. A few pustules are also present and comedones abound. The eruption has been in existence for two years. It is limited to the face. The hair is dry, and the scalp is covered with greasy scales. The appetite is deficient and there is constipation. Digestion and assimilation are poor, the integument as a whole irrespective of the actual eruption, has an unhealthy aspect; the pulse is feeble, the heart is weak and irritable.

The disease upon the face is acne, and as comedones and papules predominate it is described as acne papulosa or papular acne. As in addition to the comedones the summit of many of the papules is marked by a blackish spot corresponding to the orifice of the duct, it is also known as acne punctata. Comedones and acne are often found in association or juxtaposition. Both are affections of the sebaceous glands or ducts. It is not strange that, as concerning the same glands, the functional disorder called seborrhea should frequently, as in this case, co-exist with comedo and acne. Their coincident presence points to a profound morbid impression made upon the sebaceous glandular system. The seborrhea here is of the dry variety, seborrhea sicca.

The three disorders to which I have alluded depend upon perversions of nutrition and in many, if not most, instances this malnutrition is of systemic rather than of local origin. In weakly young persons you will often observe the orifices of the follicles dilated and conspicuous. In some instances they are free; in others they are choked by a mass of impure sebum, *i. e.*, comedones have developed. Acne is but an advanced stage of comedo. The plug of sebum creates inflammation of the duct and the gland. The result is acne papules, and these, under the influence of microbes of suppuration, may become transformed into pustules. These pathologic sequences are often reflex. They occur at the age of puberty, they may be caused by genito-urinary disease, by digestive disorders, in diathetic conditions and a depressed or irritable state of the nervous system. They may also be produced by local irritation.

In this case we have no external cause. Unlike a girl of his age he is not tempted to paint or powder his face. He has never been unduly exposed to atmospheric vicissitudes, nor has his occupation been of such a nature as to provoke irritation.

We must, therefore, as in so many diseases of the skin, look beyond that tissue and interrogate other organs. In so doing I have traced the nervous and cardiac debility to the excessive use of cigarettes. He has been addicted for three years or more to the habit of smoking and of late has indulged at every opportunity. There is no doubt that an immoderate use of tobacco has caused in this youth, scarcely more than a boy, an impairment of nerve force, manifested in deficient digestive power, debility of striped and unstriped muscular tissue, anemia, disturbance of general and capillary circulation with, finally, that morbid state of the sebaceous glandular apparatus for which he seeks relief. It seems rather strange that he should ask medical advice on account of some papules, insignificant in themselves, but magnified in importance by their situation, and apparently ignore far more serious manifestations. I regard this as an interesting example of nicotinism. As a first step in the treatment the patient must totally abandon the use of cigarettes. We shall then aim to strengthen his nervous system and improve his general nutrition. This object can be best accomplished by the use of iron. The stomach, I think, is not too irritable to bear one of the more palatable forms, such as the pyrophosphate. Some of the organic ferruginous preparations lately introduced answer a very good purpose. I will prescribe:

℞	Ferri pyrophosphatis	ʒ i	3·7
	Acidi phosphorici diluti	ʒ iij	11 09
	Elixir. simplicis	℥ j	29 57
	Aquæ . . . q. s. ad	℥ ij	59 14

M. ft. sol. Sig.—Teaspoonful in water three times a day.

Locally, he shall be directed to bathe the face with hot water night and morning, and after having dried the surface to apply the following lotion:

℞	Pulveris sodii boratis	ʒ iss	5 82	
	Aquæ hamamelidis dest	℥ iij	88 71	
	Aquæ rosæ	℥ iij	88 71	M.

Boro-glycerid solution may often be used with advantage instead of the borax. After the above preparation has been used for a week or ten days the borax may be replaced by 0.65 gram of resorcin, which stimulates the parts and aids in restoring them to a normal condition.

The boro-glycerid solution is also useful in dry seborrhea. It is necessary in that affection to clear the scalp of scales and stimulate the local circulation. The oil of ergot is an efficient application, and is often beneficially combined with the boro-glycerid or fluid oleate of mercury. Shampooing the scalp every few days is a serviceable practice. In some cases lotions are more beneficial than ointments or oils.

Another patient troubled by acne is a 17 year old girl, upon whose cheeks, chin and neck are seen a number of pustules intermixed with papules, the former being predominant, and the case being for that reason, properly described as pustular acne. The disease has been in existence for five years. At times the condition is improved and again it is aggravated. The skin is seldom if ever entirely free from lesions. The appetite is said to be good and the bowels regular. The tongue is clean. This is a well developed and physically precocious girl. The case may be viewed as one of those dependent upon the establishment of the menstrual function. Although the eruption antedated by some months the first appearance of caménial flow, it received a new impetus from that period. In the absence of other cause, therefore, it is reasonable to look for the origin of the disease in the physiologic changes which take place at that time of life. The eruption is generally more abundant at each monthly epoch. When once established the disease may, and often does, persist for several years.

In this case I shall order the face to be sponged every day with hot water, and subsequently the following ointment to be used:

℞	Resorcini	ʒ j	3 9
	Camphoræ	gr. x	65
	Unguenti aquæ rosæ		
	Unguenti zinci oxidi	āā ʒij	7 8

M. ft. unguent. Sig.—For external use.

Internally, in order to influence favorably the liver and sebaceous glands, the patient shall have:

℞	Sulphuris sublimati	gr. iij	2
	Potassii bitartratis	gr. j	065

M. ft. capsul. No. j. Mitte tales No. xi.
Sig.—Three or four capsules to be taken daily.

At the end of four or five weeks the dose of sulphur may be increased to 0.26 or 0.32 grams, and thus continued until an impression is made upon the glands.

ALOPECIA CIRCUMSCRIPTA.

The next patient, a man of 24, has circumscribed patches of baldness upon the occiput and each side of the head. The hair of the beard and eyebrows has also fallen in certain spots. This gives to the whiskers a very shaggy and ragged appearance. There is also partial canities, the hair being whitened here and there in spots. We have searched but failed to find a distinctive parasite. This fact demonstrates that the disease is not a variety of tinea. Ringworm of the scalp usually occurs in children. The denuded patches are generally of a pale red color, though they may be grayish and are covered with fine scales. In tinea tonsurans the appearance of the hairs is characteristic. They do not all fall out and leave a completely bald surface. Some, indeed, are shed completely, but many break off near their points of emergence, giving a peculiar, ragged, stubbly or nibbled aspect. The patches in the present case, however, are entirely denuded. The baldness is only in spots, but it is complete. The affected places are white and smooth. There is a total absence of scales. The disease is alopecia circumscripta or areata.

In those places where the beard is involved there is some resemblance to tinea sycosis. I have described the whiskers as ragged, but this appearance results from the irregularity of the hairy covering, and there are no pustules and tubercles denotive of barber's itch. It is necessary to differentiate closely here, but the absence of the trichophyton fungus excludes tinea. The bald patches are of the same nature as those upon the scalp and eyebrows. In extreme cases distinct patches spread and coalesce until the entire scalp and face are deprived of hair. In exceptional instances the axillæ and pubes are attacked.

It is necessary in a given case to distinguish between circumscribed and syphilitic alopecia. The latter, however, is but a single manifestation of a constitutional infection and other concomitant and undoubted evidences of syphilis can always be found. The obligation to eliminate syphilis is very pointed here, as this patient gives a direct history of a wild life, of alcoholic and venereal excess and consequent frequent exposure.

Circumscribed alopecia is of interest as it occurs in children as well as adults, sometimes spreads epidemically in asylums and barracks, occasionally developing with remarkable rapidity; the discussions concerning its etiology are also of interest. It would seem that there is a class of cases dependent upon disturbed innervation, which in its turn may be due to some definite disease of the nervous system, depression from dissipation or emotional causes as shock. To this variety the present case undoubtedly belongs. The man has undermined his nerve force by vicious habits of self-indulgence. The corresponding circumscribed canities is another evidence of nervous exhaustion. In a second well marked class we believe that a parasitic element must be present because of the spread of the disease from one person to others until a considerable number are involved.

The researches of Sabouraud are important and suggestive in this connection. Others had given much study to the flora of the scalp and the integument, but Sabouraud's conclusions if accepted unite seborrhea, alopecia circumscripta and alopecia as different stages of one malady, dependent upon the activity of the same micro-organism. He regards diffuse alopecia as due to the coalescence of different patches of circumscribed alopecia. There is not time to offer criticisms upon these comprehensive doctrines. I can only question whether the views of Sabouraud serve to explain those cases in which circumscribed alopecia attacks an individual by sudden onslaught.

At all events clinical facts remain stable, and in this patient, debilitated by excess, our aim must be to build up his nervous power and stimulate the peripheral nerves and circulation of the scalp. The first object is attained by enjoining abstinence and continence, by the use of electricity, massage, and such drugs as phosphorus, silver, iron, nux vomica or hoang-nan, camphor, cinchona or kola, etc. This patient shall be given:

℞	Tincturæ nucis vomicæ	ʒ ij ss.	10
	Extract. hydrastis fluid	℥ ss.	16
	Tincturæ gentianæ comp. . . q. s. ad	℥ iv.	128

M. Sig.—Teaspoonful in water three times a day.

Stimulation of the scalp is effected by mercurous oleate, resorcin, naphthol, turpentine, etc.

TINEA VERSICOLOR.

This man, 45 years of age, is annoyed by the presence upon his chest, back and abdomen of yellowish-brown or fawn-colored spots and patches. The eruption has been in existence for about four months. The lesions are slightly elevated and covered with branny scales, which are easily removed.

The appearance is almost pathognomonic. These pigmented, finely scaling spots denote tinea versicolor, or chromophytosis, a parasitic disease caused by the microsporon furfur. Fawn is the usual color, but the hue may vary and in tropical countries may be nearly or quite black. Its general aspect is more like that of chloasma than of any other cutaneous disease. Chloasma, however, is an abnormal concentration of pigment in the mucous layer of the epiderm; tinea versicolor affects the horny layer. The lesions of chloasma are not raised and do not scale; those of chromophytosis are slightly elevated and furfuraceous. Tinea versicolor generally avoids, but chloasma often attacks the face. In vitiligo, or leucoderma, we find a rearrangement of pigment, a transfer of granules from the center to the border of the patch.

The scales of tinea versicolor are easily removed by friction. A mild parasiticide in the form of lotion or ointment usually suffices to destroy the fungus. Boric acid, borax, sulphur, thymol and mercuric nitrate are some of the agents which have been used with success. A reliable remedy is copper oleate diluted with oleic acid or made into a 10 or 20 per cent. ointment. It is antiseptic and parasiticide; moreover, it possesses decided penetrative powers.

The use of water upon the affected parts is to be deprecated. Water feeds the parasite and contributes to the prolongation of the disease.

Let us defeat the Antivivisection Bill!

LECTURES ON TUBERCULOSIS OF THE KIDNEY.

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(Concluded from page 531.)

LECTURE II.

We will first consider the symptoms to which a tuberculosis of the kidney may give rise. There are two stages to be considered, viz.: The initial stage and the stage of full development, but before discussing these, I will say a few words regarding acute renal tuberculosis, which is not a clinical disease.

It is an accident occurring during the progress of a general infection, and the symptoms of the renal lesion are hidden by those of the lungs, pleura, etc., produced by acute tuberculosis. Two symptoms indicate that the affection has attacked the urinary gland; these are hematuria, be it repeated or simply occurring once, and albuminuria, although this symptom has less importance because it is common in all infectious diseases.

We now come to the symptoms of chronic tuberculosis of the kidney, which are more complete. In the initial stage it may be said that the majority of cases are latent and are consequently overlooked and the progress of the renal lesions is not noticed until the disease is quite advanced, and from a medical tuberculous kidney it has become a surgical one.

The hereditary antecedents occupy here an important place, and the condition of the parents, the bacillosis and genito-urinary antecedents of the patient.

The disease manifests itself by a clear polyuria and frequent micturition, which symptom is the only one present for quite a long time. Clear polyuria, in attacks, is most important. To this symptom we must add hematuria. Smith considers this a symptom of the initial stage, while Guyon compares it to the hemoptysis due to the invasion of tuberculosis in the lungs.

Vigneron found it as the first symptom of the renal trouble and thinks that it would be more often noted if the history of the patient were more carefully inquired into.

Considering now the symptoms of the stage of full development we find that they are more complex, and in order to render them clearer I will divide them into functional and physical. Now the latter may be made out from the appearance of a renal tumor or one developing in the lumbar region, by an edema of the lumbar region, while the functional symptoms are localized, or multiple pains, hematuria, the condition of the urine, the general condition, etc.

Pain, according to Le Dentu, is the most important of symptoms. It may be localized in the kidney or shoot into the neighboring region. Pain has been considered as an initial symptom. In one case reported by Vigneron, the pains had been present for five years, and of six years duration in several cases reported by Palaillon, Tuffier and Bardenhauer; nine years in a case due to Czerny, and twelve in another reported by Monod. But it may be that the pains were produced by small calculi, as in the case published by Burguerolle.

Pain produced by tuberculosis of the kidney is caused by the invasion of the pelvis of the organ and to lesions of the nerves it contains. In many cases, however, pain is completely absent.

The characters of the pains are very varied. Sometimes they occur like a lameness of short duration; sometimes like a feeling of weight in the lumbar region, at others it is acute, very sharp and intermittent; in other patients it will be described as lancing and continuous.

Generally it occurs in attacks like nephritic colic and radiates from the lumbar to the hypogastric region, thighs and genital organs. Walking, pressure, lying on the side sometimes increase it, at others, produce no influence whatever. All things considered, the shooting pains are frequent and the same in intensity as those localized in the kidney. It only appears at a very advanced stage of the affection, when the tubercles are softened and obstruct the ureter. The radiating pains only last a few seconds generally, but they are so sharp that they cause the patient to cry out. They radiate from above downward, from right to left and left to right, but only exceptionally from below upward.

The pain increases during the periods of retention and stops as soon as the urine, pus and caseous collection passes. When the disease is far advanced, a pain similar to nephritic colic occurs, due to the stopping up of the ureter by masses of broken down tuberculous tissues. The same pain may occur when small blood clots are passed, or it may persist after an abscess of the kidney.

Hematuria.—I have said that in the initial stage of the disease a hematuria could occur. When the affection is fully developed, this symptom becomes important if it presents certain characters besides those of an ordinary hematuria. Those due to tuberculosis of the kidney are spontaneous, intermittent, and of short duration, often only slightly tinting the urine, but the blood is always intimately mixed with the urine. The quantity of blood is sometimes so small as to require a microscopic examination in order to find it. The hematuria of tuberculous kidney occurs without regard to walking or riding and may occur during rest.

The urine.—The characters of the urine are of the utmost importance. In the beginning of the affection it is perfectly clear, but later becomes very purulent and pyuria is generally a constant symptom. The urine is cloudy when passed and remains so. When left in a glass tube a whitish or grayish chalk-like deposit is seen at the bottom; it is sticky and may measure several centimeters in thickness. This large amount of pus is alone enough to indicate the renal nature of the disease The deposit may also be streaked with blood, the urine above is cloudy and thick. The density is normal and the reaction is acid. There is probably albumin in these urines, although the pus and blood may deceive you in this respect.

Urea usually decreased according to the amount of destruction of the renal parenchyma; sugar is absent, but there is an excess of the phosphates and sometimes of the urates. The phosphates are more particularly ammonio-magnesia.

Microscopically, pus is found as well as leucocytes, fat globules and red blood corpuscles. Deformed and shrunken epithelial cells abound.

Bacteriologically, we find a multitude of bacteria. They abound in the products of excretion and the urinary system, but as soon as there is a lesion in the latter the bacterium coli is often found. The bacillus of tuberculosis may also be discovered and will then settle the nature of the lesion, although it does not permit us to say which organ is the seat of the disease. The examination for Koch's bacillus should never be omitted and if the first examination should be negative it should be attempted several days in succession until its presence in the urine is demonstrated.

Of all the characters of the urine the most important is the presence of pus. This pyuria presents three characteristics, viz., it is spontaneous, constant and lasting. It may be very abundant and there is a direct relation between this abundance and an increase of the tuberculous lesions. The quantity of pus may be intermittent, sometimes being passed in large quantities, at others in small amount. It is always accompanied by sharp pain, either local or general, anorexia and fever, because the renal pocket contains the infectious material, thus infecting the entire organism, but when the pus passes out with the urine these symptoms subside. When the blood clots contain small grumous particles the size of a pinhead, it is pathognomonic of a tuberculous ulceration of the kidney, according to Vogel, Chopart and Lebert.

I shall now consider the general symptoms as well as those observed in the healthy kidney on the opposite side, the bladder and digestive tract. Guyon has described painful symptoms occurring in the healthy kidney and rectum that he calls reno-renal and recto-renal reflexes and are very curious to study. The healthy kidney without any pathologic change, is the seat of quite sharp pains, similar to those felt in the diseased organ. Generally the ablation of the diseased kidney causes the reflex pain to disappear in the healthy organ.

While the reno-renal reflex is often absent, the reno-vesical is hardly ever wanting and is even an early sign of tuberculous involvement. According to Beal, this reflex is characterized especially by pain in the bladder without any pathologic change in the organ, while Lecorché believes that there is a lesion in the bladder, the pain indicating a tuberculous lesion there. Besides the pain, inflammation of the kidney may produce a frequency of micturition. These three symptoms produced by vesical reflex, frequent, painful and imperious micturition, play an important part according to Beal, Clarke, Roberts and Newman.

This pain is very variable and changing, sometimes only amounting to an abnormal sensitiveness in the hypogastrium. Other patients complain of a very severe pain in the urethra while passing water, which may last after the act, but usually stops when the last drops are expelled. These pains are accompanied by a violent anal tenesmus and even the prostate may become painful.

The micturition besides being painful is frequent, and Tuffier says this condition is sufficient to distinguish tuberculosis of the kidney from a renal neoplasm or a simple pyelo-nephritis. The patient may pass his water seven or eight times in the day and four or six times in the night, sometimes as often as every fifteen minutes or oftener. This frequent and painful micturition is imperious, the patient can not pass his water, but the bladder suddenly contracts and empties itself instantaneously. Incontinence and retention are infrequent in tuberculosis.

For certain English surgeons these reflex symptoms are sufficient to make a diagnosis. Other surgeons believe that they are more than reflex. In Morris' case, who passed water 160 times daily, the autopsy showed a few recent granulations in the bladder. In a case of very painful renal tuberculosis in a woman, with frequent micturition, Tuffier performed a nephrectomy. The patient recovered, but the desire to urinate was in no way lessened by the operation and it was found that there was a commencing tuberculosis of the bladder. Consequently, when there are frequency and pain in urinating in cases of tuberculosis of the kidney, the bladder has also been invaded by the disease and the reflex theory should not be considered.

The coincidence of inflammation of the bladder, especially tuberculous cystitis with tuberculous degeneration of the kidney and ureter, explains, according to Rogers, the reason why we sometimes see cases in which there is an abnormal sensitiveness in the hypogastric region and more or less sharp pain before, during and after the passage of the urine, the emission of which is often repeated and the quantity passed very small, as well as several other symptoms common to all kinds of cystitis. The symptoms given us by the general condition of the patient have nothing characteristic. At the beginning they are not at all marked and a tuberculosis of the kidney may even get entirely well at this period if properly treated medically.

Infection by retention of the poisonous débris in the kidney and the toxins secreted by the pathogenic bacteria is often added to the tuberculous infection. In this case we have anorexia, vomiting, insomnia, chills alternating with sweating, a dry, red tongue, exaggerated thermometric oscillations; in fact, all the symptoms of pyemia or septicemia. These symptoms are not necessarily present in every case, but when they do exist the indications for action are more clearly defined.

According to Dickenson, a tuberculous kidney rarely gets so large as to form a tumor. On the contrary, Newman thinks that there is soon a slight increase in the size of the organ, but which can not be made out by palpation. Le Dentu believes that in the beginning the kidney is hardly increased in size, but soon acquires a considerable volume. The truth is that the kidney may be increased in size in some cases, while in others the organ is not much larger than normal and consequently can not be palpated. Tuffier had a case of an enormous tuberculous kidney which developed upward toward the diaphragm and was objectively inaccessible. When the kidney is sufficiently large, bimanual palpation and rectal examination will reveal a tumor. By inspection a tumor or swelling will be seen in the lumbar region, sometimes extending to or reaching even above the umbilicus and extending into the iliac fossa. It will also be noticed that this tumor projects under the soft parts from the last ribs to the iliac crest and may be either distended or decreased in size after micturition. Edema from compression is sometimes present. Bimanual palpation must be carefully practiced and will give you a more precise idea of the condition of affairs than will percussion, although the latter should not be omitted in your examination.

You will feel in the lumbar region, sometimes in the anterior abdominal region, a solid, resistant or fluctuating tumor, usually painful on pressure and in many ways similar to simple pyonephritis. The indurated ureter, which is sometimes deviated, will be felt, like a hard cord, containing bosses and running through the iliac fossa. Rectal examination will complete the physical signs but you must examine the urethra, the prostate, seminal vesicles and bladder in order to ascertain if they contain foci of tuberculosis.

We now come to the diagnosis, and I shall first consider the premonitory stage. For many surgeons, the diagnosis can not be made or it is of extreme difficulty. We must be guided by the etiologic facts of the given case. Slight or vague pains, the initial lameness, must be differentiated from lumbago following a strain or sudden movement, as well as from lumbo-abdominal neuralgia, which may be recognized by its well defined points. But the symptom pain does not signify much until a hematuria appears. When this occurs you must make a differential diagnosis between a hematuria due to tuberculosis of the kidney and that due to hypertrophy of the prostate, acute cystitis, nephrolithiasis and vesical bacilliosis.

Calculus of the bladder.—After a long walk or riding in a carriage or on horseback or bicycle the patient passes blood from the bladder and the hematuria may last all night and in the morning the urine is only slightly colored or may even be clear. If these exercises are again indulged in the hematuria returns.

Hematuria due to vesical calculus has consequently this pathognomonic sign produced by movement and ceases when the patient remains quiet. Under other circumstances, without excessive fatigue, after passing water a sharp pain causes the urethra to violently contract and with the last drops of urine a few drops of blood are expelled, or there may be a jet of blood. There are never any clots indicating a considerable hemorrhage.

Tumors of the bladder.—The hematuria is unique and exists alone as a functional trouble. It is spontaneous, occurring in the morning when the patient awakes after a night's sleep; or in the day, without having worked or exercised the patient may pass a certain amount of blood. The passage of a catheter or washing the bladder causes the passage of blood whether the patient be seated or standing and lasts several days, weeks or even months, the hematuria occurring by attacks usually without cause. The attacks occur at nearer intervals as the disease increases.

The urine is more colored at the end than at the commencement of micturition and much blood is passed. Clots may be expelled or may be arrested in the urethra, producing a serious retention.

Tuberculosis of the bladder.—In the early stage, hematuria is a true hemoptysis, spontaneous and small in amount. It occurs at the end of micturition, disappears without notice, as in tumor of the bladder, but is different from the hematuria occurring in the latter by its very small amount.

Renal calculus.—Hematuria is frequent but not a constant symptom. It is of short duration and small in amount, and does not contain clots. Hematic casts are found in the urine formed by strings of red blood corpuscles and are pathognomonic of a renal origin.

It is characterized by its appearance and increase during walking, efforts and exploration of the kidney as well as during digestion. The attacks are painful often accompanied by hemorrhages either before during or after.

Contusion of the kidney.—Hematuria immediately follows a traumatism of the kidney, rarely appearing as late as a week after the accident. What is particularly characteristic of renal hemorrhage is its sudden arrest and reappearing soon again. (Guyon.)

Considering now the diagnosis of a renal tuberculosis in full development, I may say that it makes its presence known by a pyuria following a pyelo-nephritis, by a tumefaction of the kidney and by the symptoms that have already been given.

Pyuria.—A cloudy pyuria is characteristic of a tumor of the kidney. The color of the urine varies from a milky grayish white to green. On the contrary a cystitis shows a purulent deposit at the bottom of the tube with clear urine above after it has been allowed to stand.

Wounds of the kidney.—Superficial wounds do not give vent to hematuria, but if the laceration is deep there is slight hemorrhage.

Pyelo-nephritis.— Hematuria is infrequent, and when it is present is only seen in the form of streaks of blood.

Malignant tumors of the kidney.—Hematuria is absent in almost 25 per cent of cases of cancer of the kidney, in 50 of sarcoma, and in 75 per cent. of renal neoplasms in children.

It is absolutely spontaneous, quiet or movement have no influence in its production. Its appearance is preceded by a sensation of weight, and after the blood has been passed there is relief. The blood is mixed with the urine, which varies in color from red to brown. The mixture is equal and may contain long cylindrical clots and casts of the ureter, which are passed without pain. Pieces of the neoplasm may sometimes be found in these clots. There are attacks of pain which occur at long intervals.

Tuberculosis of the kidney.—I have already described the hematuria occurring in this affection; how when a patient has passed blood from the urethra, and you suspect a lesion of the kidney you must ask yourselves: From what organ does the blood come? What is the nature of the kidney lesion? Which is the diseased kidney?

Now we can localize the hemorrhage from the kidney, although many are the hemorrhages coming from the prostate and bladder. The anterior and posterior urethra can also give rise to a temporary passage of blood at the beginning and end of micturition, but digital examination of the prostate, cystoscopic examination and catheterization of the bladder will eliminate prostatic and vesical lesions.

In vesical tuberculosis as in neoplasms of the kidney, the hemorrhage is spontaneous, intermittent, temporary and small in quantity. The prostate and testicle are usually the seat of tuberculosis when this affection exists in the bladder. In order to differentiate a renal from a vesical tumor hemorrhage you should distend the bladder with an antiseptic solution and wash it out. If after this has been carefully done the last part of the solution withdrawn is deeply tinted with blood you may conclude that it comes from the bladder. The same is the case if the blood appears after forced distention or recto-abdominal palpation.

As a patient passes pus and then this disappears from the urine and is followed by a painful sensation in the lumbar region, nephritic colic and then a sudden reappearance of the pyuria with disappearance of the lumbar pain, you may be sure that the pyuria comes from the kidney. You must also examine the urine microscopically, and by adding ammonia it will give the urine a gelatinous aspect if it contains pus.

Pyelo-nephritis— Microscopic examination alone is capable of allowing you to make a diagnosis of tuberculous pyelo-nephritis. Besides the pus you will find single epithelial cells, hyalin casts and cells from the pelvis of the kidney. There are also pieces of renal tissue, phosphates, streptococci, bacterium coli, micrococci and sometimes the bacillus of tuberculosis. The diagnosis is consequently very difficult because it is only a pyelo-nephritis produced by a specific infection.

A simple pyelo-nephritis may become tuberculous, and a gonorrheal cystitis may be the starting point of a tuberculous infection. A dirty catheter may be the cause of a secondary infection on a beginning tuberculosis.

Chronic cystitis.—Polyuria is not marked. The urine after standing separates into two layers, the upper being clear. When during the process of a vesical disease the patient commences to lose strength you should suspect tuberculosis and search for it.

Pus is constantly present during cystitis, and you know the classical experiment with the three glasses which shows that it is above all present at the beginning and end of micturition.

Vesical calculus.—A stone in the bladder creates a particular condition, most favorable for the development of cystitis.

I will now proceed to discuss the diagnosis of a urine containing pus. The principal point is to make a diagnosis of the nature of the infection. Bacteriologic examinations and experimental inoculations are of little value as regards the urine.

You should particularly endeavor to make a differential diagnosis of tuberculous pyelo-nephritis, and pyelo-nephritis produced by a calculus. It is quite easy to make a diagnosis of a pyelo-nephritis produced by a cystitis, prostatitis or stricture of the urethra. Be guided also by the acute progress of the lesion on the disease presented by your patient in order to diagnose a pyelo-nephritis of an infectious disease such as osteo-myelitis, measles, etc.

Your diagnosis consequently is made by three factors, viz.: The general condition, the presence of a tuberculous lesion and absence of an antecedent infection. Hematuria, pyuria being two prominent symptoms of tuberculosis of the kidney. There remains a third, tumor of the kidney, which I shall now discuss.

Tumor resulting from contusion of the kidney.—Sometimes there is a diffuse tumefaction filling the entire lumbar fossa, which is rather hard and adheres to the surrounding parts; this is a peri-renal infiltration. Hemato-nephrosis consists of a distinctly limited, rounded movable tumor with a history of contusion.

Tumor in renal lithiasis.—A history of former lithiasic trouble and pain when the patient moves, will clear up the diagnosis.

Tumor in pyelo-nephritis.—Here we find symptoms of renal neoplasms as projecting abdomen, anterior sonority and renal ballottement. The tumor is round, hard, spontaneously painful or becomes so on pressure, the pain is intermittent.

Tumor in peri-nephritis and peri-nephritic phlegmon.—Palpation always reveals a doughyness, resistance and deep induration localized in the lumbar region. The tumor does not follow the movements of the diaphragm. Peri-nephritis is a lumbar tumefaction, while pyelo-nephritis forms an abdominal tumor.

Hydronephrosis is entirely abdominal and fluctuating, and may be mistaken for an ovarian cyst. It is only by its lumbar situation, and descending and lateral evolution that will lead you to make a diagnosis of hydronephrosis.

Malignant tumors of the kidney.—Tumors of the abdominal wall are immobilized by contraction of the muscles, and their dulness is superficial. Neoplasms of the liver have a sharp border continuing with the liver. Tumors of the spleen have the shape of a cake, the percussion dulness extending upward on the right with a well marked left-sided sonority.

Cancers of the colon cause intestinal obstruction and intestinal hemorrhage, which complications are not met with in tumors of the kidney.

Tumors of the mesentery are median, very movable and extend from above downward.

The clinical diagnosis of tumors of the supra-renal capsule is impossible, while tumors of the ovary and uterus will cause no difficulty in diagnosis.

Consequently when there is renal tumefaction the diagnosis is very difficult. The physical signs are not alone sufficient to indicate the nature of the tumor. and you must take into consideration the functional and general symptoms and age of your patient as well. Do not forget that syphilis of the kidney may produce an enormous tumefaction of the organ, and where this diathesis is suspected try an antisyphilitic treatment before resorting to surgical measures. Examination of the ureter and bladder of the supposed healthy kidney will also contribute to render the diagnosis more precise.

Tuffier reports two exceptional cases of tuberculous kidney. The first presented the symptoms of renal colic. There were no physical signs, pyuria or hematuria, perfect integrity of the pelvis of the kidney and ureter. The attacks were sharp, without lumbar pains. Pains shot down the thighs and spermatic cord; frequent micturition; in fact nothing was wanting excepting the appearance of gravel in the urine. The kidney was not increased in size and painless. It proved to be a renal tuberculosis with pain, but without retention.

The second case was a woman, aged 42 years, who presented abundant hematuria, no renal tumor, no pyuria. Endoscopic diagnosis showed blood oozing from the ureter. Nephrectomy followed by cure.

When you have a young patient presenting frequent hematuria without any precise renal or vesical symptoms you should suspect tuberculosis of the kidney. If besides, your patient has an early limpid polyuria without any particular marked symptoms in the urinary system, you should be guarded in your diagnosis and prognosis.

In a case reported by Tuffier he found a tumor on the right, but a most careful palpation under chloroform did not reveal the slightest increase in size of the left kidney. Now the left kidney was larger than its mate, but had developed upward toward the diaphragm and was thus concealed.

As a pyelo-nephritis appears without any cause, and nothing can be elicited from the history of your patient, you can as a last resort aspirate the pus from the kidney and make a bacteriologic diagnosis.

The most important point is to distinguish those cases requiring surgical treatment and those that are inoperable. In the female we can easily come to a conclusion by the use of Kelly's and Garceau's instruments. As to the diagnostic value of the bacillus of tuberculosis, let me warn you that in about 40 per cent. of cases it is not in the urine, while if you resort to experimental inoculation, you will have no result before four or five weeks, and sometimes these are negative.

Now, how shall we make a diagnosis? By observance of former infection which could explain the pyuria, on the general condition of the patient and the presence of another focus of tuberculosis in some other organ.

Which is the diseased organ? Swelling and pain are the two symptoms by which to be guided, but they may deceive you. And in closing let me say that a nephrotomy will allow you to assure yourselves of the character of the urine secreted by the kidney. Sometimes a peri-nephritic abscess will call for incision and you can at the same time ascertain the lesion of the kidney and act as you deem proper.

COCAIN IN OTOLOGY AND LARYNGOLOGY.

Presented to the Section on Laryngology and Otology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1-4, 1897.

BY LEDRU P. SMOCK, AM., M.D.
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In 1855 Geadeke isolated a crystalline alkaloid from coca leaves, which he called erythroxylin. Five years later Albert Niemann further investigated this alkaloid and gave it the name cocain.

The power of cocain to produce anesthesia was first called attention to by Fronmueller in 1863, but its practical use became more fully known in 1884 through the investigation and experiments of Freud and Koller.

It was then first used in ophthalmic surgery. Cocain, like all new or rejuvenated remedies, quickly became a panacea "for all earthly woes." While it is still largely used for many external and internal lesions, the aurist, laryngologist and gynecologist probably use it with the greater satisfaction, owing to its anesthetic effect upon the mucous membrane.

Cocain hydrochlorate, when pure, is found in colorless prisms of strong alkaline reaction, giving an astringent, bitter, burning taste followed by a numbness of the mouth and lips.

The folowing are the tests for the determination of the presence of allied dangerous alkaloids:

Test 1.—Dissolve one-tenth gram cocain hydrochlorate in five cubic centimeters of water (making a 2 per cent. solution) in a clean, glass-stoppered vial, adding three drops diluted sulphuric acid; then add one drop of a 1 per cent. solution potassium permanganate, which produces a pink or violent tint. This tint will not visibly decrease within half an hour if the cocain is free from cinnamyl-cocain and other dangerous impurities.

Contamination with isatroply-cocain (a violent cardiac poison, which is stable toward the permanganate test) and other basic impurities may be detected by MacLagan's ammonia test, viz:

Test 2.—Dissolve one-tenth gram cocain hydrochlorate in eighty-seven cubic centimeters of water, and then add three drops of ammonia; for a few minutes the solution will remain clear, but a rapid stirring with a glass rod will cause a prompt crystallization.

The most useful solutions I have found are a 2, 4 and 10 per cent. in a saturate solution of boric acid. Where it is desirable to have a longer or an anesthetic action upon the deeper tissues, the 2 per cent. is the most efficient; as the stronger the solution of cocain the greater the superficial contraction and the less absorption of the drug.

My usual procedure is to spray the parts with a 2 per cent. solution, followed in five minutes by a pledget of cotton, saturated in the same solution; after five minutes apply a 4 or 10 per cent. solution on cotton; in five minutes after the last application the parts will be as thoroughly anesthetized as the idiosyncrasy of the patient will permit.

The use of cocain outside of minor operations, where I believe it will be in most instances superceded by eucain, are many and exceedingly valuable.

The purpose of this paper is to give the personal experience of the writer in the use of cocain on the following acute diseases:

In acute rhinitis, where the nasal mucous membrane is swollen and sensitive, the nasal passages more or less occluded by the intensity of the congestion, the use of a 2 per cent. solution in the form of a spray gives the patient the greatest possible relief and affords the physician an opportunity to cleanse the inflamed membrane.

If the treatment is followed by a 4 per cent. solution spray of antipyrin, then by albolene or blandin in spray form the relief and effect of the treatment will be greatly prolonged, sometimes rendering the nasal passages clear for hours. Many cases will be aborted by two or three such applications at intervals of a few hours.

I have found a pledget of cotton saturated with a 4 per cent. solution of cocain exceedingly efficient in epistaxis, usually no bleeding following the removal of the cotton, which should be left in the nasal passage several hours.

Acute tonsillitis, if treated in its incipiency, will frequently be aborted by prompt and persistent use of cocain sprayed or applied to the tonsil and surrounding parts with a brush or cotton covered probe. The only unpleasant effect I have noticed from this treatment is slight nausea, which is promptly relieved by one or two 0.65 to 1.3 gram doses of potassium bromid, and any depressing effects upon the heart's action is rendered unnoticeable by 10 to 15 drop doses of tincture digitalis previously administered.

I have used eucain in similar cases with but fair results; so far in my experience cocain seems much more efficient, causing greater contraction of tissue, while eucain produces greater anesthesia with slight congestion of the mucous membrane as well.

I have frequently used cocain spray in the nasal passages and larynx of patients suffering from an acute attack of laryngeal asthma, the relief being almost instantaneous; also in spasmodic laryngitis, or false croup in children, cocain spray has almost always afforded immediate relief, a second attack rarely recurring, that night at least.

I do not remember a single instance of nausea or depressed heart's action following the use of cocain in either of these affections.

In the treatment of acute otitis, furuncle and acute otitis media suppurations, the most gratifying results have been noticed after the use of a 4 per cent solution.

Saturate a pledget of cotton, warm it over the lamp and gently insert in the canal of the ear and the pain of acute otitis, in many instances, will be quickly and permanently relieved or greatly modified.

Furuncle, if noticed in its incipiency, will in most cases be aborted by keeping the canal of the ear packed loosely with cotton saturated with cocain; if not aborted, it will run a rapid, almost painless course.

In cases of acute suppurating ear with a tendency to hemorrhage, the action of the cocain and boric acid solution is most gratifying to the patient and yields as speedy a cure as any treatment I have used.

In no aural case have I seen or known of unpleasant or toxic effect from the use of cocain, its action probably being purely local with at least but a very slight absorption.

I have, in this paper, avoided the consideration of the use of cocain in operations upon the throat, nose or ear, believing that eucain is a more desirable anesthetic in most cases.

Exception might be taken to this view in the use of the electro-cautery in operations for anterior or middle hypertrophy of the mucous membrane on the turbinate bone; cocain in this case, by more fully contracting the tissue gives a better opportunity for the use of the electric knife.

In the removal of the posterior nasal growths with the Jarvis snare or an electric snare eucain is much more desirable, as the contractile power of cocain frequently renders it impossible to grasp the growth with either instrument.

The abusive use of cocain and the cocain habit, I believe in most cases, follows the use of pills or tablets containing the drug combined with other medicine for the relief of laryngeal and pharyngeal irritation, or taken internally for the relief of some forms of dyspepsia.

I have never seen a case in the medical profession. but am told that many are unfortunately addicted to the habit.

The greatest care should be observed by the physician in all cases where there is necessity for the use of the drug in prescriptions, less the patient, by indiscriminate use, should form a habit more deleterious than either that of alcohol or opium.

I would suggest that all prescriptions be marked: "Not to be renewed without a written order from the physician."

3330 Chestnut Street.

DISCUSSION.

Dr. Wilson—I have never been able to relieve acute otitis media with cocain 4 per cent. I have obtained much more benefit from heat. Does not Dr. Smock think the heated pledget of cotton may have given relief?

Dr. Smock—I think the cocain has much effect. Heated applications in otitis are always grateful.

FRACTURES OF THE NASAL BONES.

Presented in the Section on Laryngology and Otology at the Forty-eighth Annual Meeting of the American Medical Association at Philadelphia, Pa., June 1-4, 1897.

BY FREDERICK C. COBB, M.D.

BOSTON, MASS.

Neither in the works on surgery, nor in the special works on the nose and throat is there much information about this subject, and yet any injury deflecting the nasal bones causes a deformity very apparent and disagreeable throughout life, besides often obstructing one of the nostrils. Probably many of these cases occur in childhood, due to falls or blows, and the injury to the nasal bones is so masked by the swelling resulting from the accident that fracture is not diagnosticated. As the swelling disappears, it is noticed that the nose is no longer quite straight, and that one nostril is somewhat obstructed. These cases often come, in adult life, with a request that the nose may be straightened or the nostril cleared for respiration.

To replace the nasal bones is not as a rule difficult, but to keep them in place has been found to be almost impossible. After fracture, splints have usually been applied to the inside and must be worn two or three weeks. Although the lower meatus is very tolerant of tubes or splints, as shown by their use in the correction of septal deviation, the middle meatus and the upper portion of the nasal cavity is not so accommodating. Pain, sneezing and swelling of the conjunctiva on the affected side usually follow the introduction of splints high up in the nose, and the patient is unable to bear the treatment. Therefore, after correcting the nasal deformity as well as possible at the time by etherizing, and straightening the nose, the surgeon is usually obliged to content himself with the hope that the nasal bones will remain as he has left them, a hope which is frequently disappointed. It may be asked, what is there to deflect the nasal bones after they have been placed in proper position, and I believe the answer can be found, first, in the spring-like elasticity of the cartilaginous septum which is often thrown out of its normal conditions by the accident; and secondly, in the fact that an organ so exposed as the nose can not be well protected against slight pressure, during sleep especially. When a very slight impulse will alter the position of a fractured nasal bone, we can not wonder that they so rarely stay in place. The elasticity of the septum, if its normal attachments were unaltered, would tend to keep them in their position after the nasal bones had been restored to their normal position. I believe many, if not most, fractures of the nasal bones alter the usual attachments of the septum to its neighbors, and the co-existence of dislocation of the cartilage from its attachment to the maxillary process and the superior maxilla is often found with a long standing deviation of the nasal bones. Other septal deformities, also, are usually present in such cases, but whether as the result or cause of the misplaced nasal bones is a more doubtful question. My view is that the blow which fractures the nasal bones also dislocates the septum more or less from its bony attachment, thus altering its normal direction of spring and prevents its exerting that pressure to keep the nasal bones in their mal-position. In one of the cases I cite, the septum could be seen, on pressing on the bridge of the nose, to alter its position from a deflection partially obstructing one nostril, to one giving almost perfect symmetry to both nostrils; yet when the nasal bones were released the septum returned to its old position. This case illustrates the fact that the replacing of the nasal bones without splints can not always be trusted to keep them in position. For some time we have made attempts to keep a pressure on the bridge of the nose by the use of the band of a head mirror, but it was found that no matter how tightly the strap was pulled, the looseness of the scalp allowed so much movement of the apparatus that it was practically inefficient in holding the nasal bones in place. Noting the difficulty of turning one's hat on one's head suggested the idea of having a band made of steel shaped to the head by some similar method. This plan has seemed to do so well that I suggest it for your consideration. The band is shaped to the head by the use of the hatter's form, by which the shape of the head is accurately marked on a sheet of paper; but this method required an enlargement of the paper model and more complicated apparatus than was necessary. It was found also that as it corresponded to the head in only one plane, the steel band being wider than that plane could not be so well shaped to fit the head. For patients accessible to an instrument-maker, a strip of lead was used, fitted to the head at the level desired, and then a steel ring

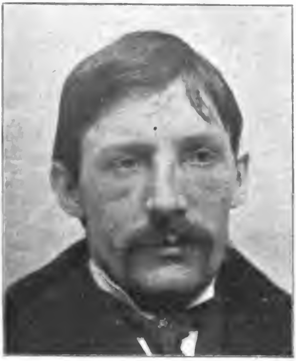


Figure 1.

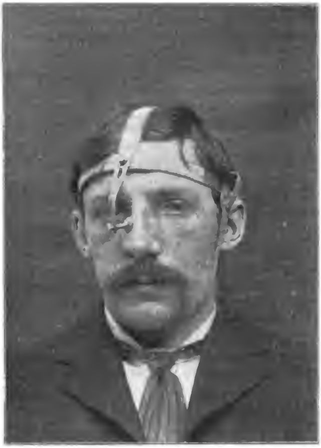


Figure 2.

was made to correspond with it. For physicians living at a distance from an instrument-maker, the following plan is suggested: A strip of oiled silk is wrapped about the patient's head at the level desired for the band, and a few turns of a roller bandage of plaster of Paris being moistened, are applied around it, and allowed to harden in position. When the plaster is removed, a cast of the inside may be made by oiling it and filling it with plaster, or the hardened bandage may be sent direct to the instrument-maker, who can shape a steel band to correspond with it. The head-band is prevented from sliding downward by a strap passing over the head, and from sliding upward by a chin-strap. It should be broad enough to allow very little lateral twist, but the effect of such twisting can be neutralized by the screw attachment as well as by the spring. The nose being unbandaged, its position can be clearly seen by the patient, and the pressure of the spring on the nasal bones may be increased or diminished as may be necessary. If there is a depression as well as a lateral motion of the nasal bones the depressed fragment should be first pried up into position from the inside of the nose, under ether, and then packing applied high up in the nostril, if possible. The discomfort and conjunctivitis resulting are the main objections to this plan, but there seems to be no other way if the fracture be a depressed one. If the pressure of the pad against the nasal bones produces any irritation of the skin, the pad may be moved slightly higher or lower without altering its efficiency. I have seen no inconvenience except a slight reddening of the skin follow the use of this splint. The following cases and cuts illustrate the use of the splint:

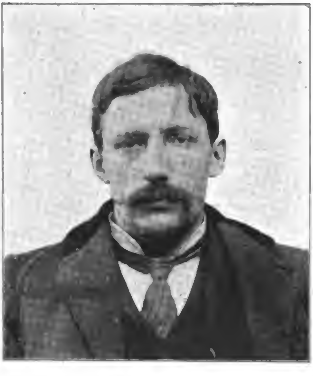


Figure 3.

Case 1.—J. L. K., age 25, entered the Massachusetts General Hospital, February 8, with the following history: Three days before, he was assaulted by a man with a club, and received several violent blows on the bridge of the nose. Examination showed ecchymosis of the upper left eyelid and under both eyes. The nasal bones were deviated to the right side, and the bridge of the nose was easily movable. The left nasal bone was somewhat depressed; the tip of the nose was deflected to the left, while the nasal bones inclined to the right. On examination of the nostrils the septum was found to be deviated anteriorly into the right nostril at about the junction of the bony and cartilaginous septum. On pressing the nasal bones to the left, the septum straightened itself, but not completely. The nasal bones were movable, the fracture appearing to be at their junction with the frontal and superior maxillary articulation. The fracture was compound, for bleeding occurred from the right nostril on moving the bridge of the nose laterally. The nasal bone on the left side was depressed from an old fracture, dating back several years. The splint, as shown in Fig. 2, was applied, and at the same time the depressed nasal bone was pushed into place from the inside and held there by a pledget of antiseptic wool. This had, however, to be removed within ten days on account of pain and discomfort, as the patient was unable to bear it. The splint caused no discomfort, and the septum and nasal bones under its pressure returned to their normal position. The splint was kept on twenty five days, and the nasal bones were found to be firmly fixed in position. The only inconvenience resulting from the splint was a slight reddening of the skin at the point of pressure of the pad. Figs. 1 and 3 show condition of nose before and after treatment.

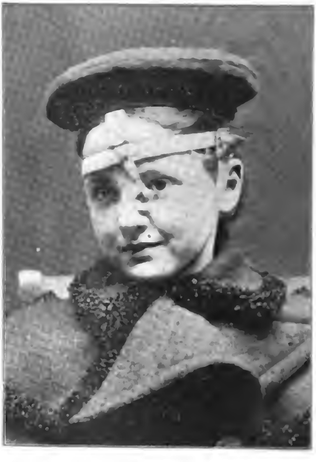


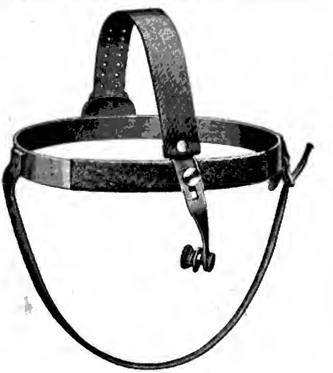
Figure 4.

Case 2.—H. C., a girl, aged 8, entered the hospital with the following history: She was accidentally struck on the right side of the bridge of the nose by a base-ball bat. The physician in attendance writes me that the nose was so much deviated that a probe was with difficulty introduced into the left nostril. He, however, replaced the nasal bones as well as possible, and she entered the hospital for further treatment. Examination showed a marked deviation of the nasal bones to the left. On gently pushing the bridge of the nose it was found to yield easily, while on rhinoscopic examination, the septum was seen to alter its position from a considerable deviation to a nearly vertical position. The nasal bones were dislocated from the nasal process of the superior maxilla, and were movable upon each other. The splint was applied, as shown in Fig. 4, and kept on two weeks, leaving a nose apparently perfectly straight externally, and showing internally a nearly vertical septum without any obstruction of either nostril. No discomfort resulted from the splint, nor were there any marks of pressure on the skin except a very slight reddening.

11 Marlborough st.

DISCUSSION.

Dr. Roe—The apparatus devised by Dr. Cobb for the treatment of fracture of the nasal bones is an ingenious one, but he has evidently made it without previous knowledge of a similar instrument that was devised several years ago by Adams of London, called Adams' nasal truss, which is figured in Watson on "Diseases of the Nose." Longitudinal fractures of the bones of the nose, as a rule, require little or no retentive apparatus, for the bones almost always remain in place after the fracture is reduced; but transverse fractures of the nasal bones will not remain in place and therefore require retentive apparatus. In these cases I use both an external and internal support. I fit a metallic shield, usually made of aluminum on account of its lightness, cut and bent so as to conform to the size and shape of the nose before the injury. This is placed on the outside of the nose and held there by adhesive plaster. For the inside support, after the bones are replaced, I pack the vault of the nostril lightly with antiseptic gauze. Below this I insert a spring made of light brass spring wire, nickel plated.. One arm of the spring passes up under the dressing, while the other rests on the nose. To guard against irritating the tissues, the arms of the spring are covered with rubber tubing. The tension of the spring can be so regulated as to give the exact pressure required. The pressure in these cases should always be light, for the reason that very little is required to retain the bones in place, there being no muscular action to displace them. Moreover, if there is undue pressure the dressing at once becomes irritating and unbearable. In some cases Adams' truss or Dr. Cobb's apparatus might be of special service, but I have found no cases in which the plan I have described has not given most excellent results.



Codman & Shurtleff,
Boston.

Dr. Stucky—I have tried Dr. Roe's method and I find that the cotton or gauze produces considerable irritation. I now use a modification of Asch's tube, and get very good support. I tried sheet lead outside, but found it heavy, and now use dental rubber. I bend it and hold it with rubber adhesive strips. I put the Asch tube in hot water until it becomes pliable and then apply it.

The Chairman—I have used satisfactorily a plaster of Paris dressing. It is not always possible to get a splint such as has been described, and in two cases I have had difficulty in keeping splints from slipping. I have the patient lie down and adjust a plaster of Paris mask. This is made quite thick over the nose and in the angles between the nose and cheek; curvatures in the upper contour are left for the orbits, and it then spreads out over the cheeks to the ears. It should be lined with thin rubber cloth. The fragments should be previously adjusted and maintained in the right place by pressure during the "setting" of the plaster. Tie the mask by a couple of tapes, one over and one under the ear, coming together behind the head. The results have been very good. If you wish to get additional pressure, take a bit of cotton and put it within the mask where pressure is desired, when you dress the case, every day or two, adding cotton as you require pressure. An intra nasal tube or splint is sometimes necessary in addition. The only objection to this method is the temporary disfigurement.

Dr. Roe—I have never found any bad results from internal support if there is not too much pressure. Pack with cotton lightly, not too firmly.

Dr. Cobb—We have tried the plaster mask in the Massachusetts Hospital and it did not seem strong enough. Masks of metal, though they kept the relative position of the nasal bones, did not keep the whole bridge from deviating one way or the other. Possibly a combination of splint and bandage might do well.

CERTAIN CONDITIONS OF THE TONSILS WHICH LIMIT THE USEFULNESS OF THE TONSILLOTOME.

Presented to the Section of Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

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It seems a safe assertion to say that the tonsillotome is the instrument most frequently selected by the surgeon in the performance of tonsillotomy. In most instances, however, I think that excision would be more effectually done by other means than by the guillotine-knife.

This opinion may appear easier of acceptance or denial, if we think for a moment why we should excise a tonsil at all. The operation is done either for the removal of a mass from the fauces which occludes the respiratory tract and interferes with phonation, or for the purpose of freeing the throat from the presence of tissue already so abnormal that it readily becomes infected by any micro-organisms which produce an inflammatory process. In either event, unless the work of excision is done thoroughly, the end sought is not attained, and the instrument depended upon has failed in its work. Why should the tonsillotome be an instrument peculiarly well adapted by its size, shape and action to fail in its work? This question may be answered by considering the conditions usually presented by the class of tonsils where the operation of excision is justifiable.

The text-books of anatomy tell us that the tonsils are almond-shaped masses of lymphoid tissue placed within the somewhat triangular-shaped space between the palato-glossus and the palato-pharyngeus muscles; that they are about one-third of an inch wide by three-fourths of an inch long, the vertical being the longer diameter. There are many such tonsils, yet, even within normal limits, there are such enormous variations from this standard that such divergences can not always be considered evidence of disease. The tonsils lie at a point where in embryonic life a very complex development is in progress. Between that anterior end of the fetal fore-gut which pushes itself upward beneath the hind-brain, and the invagination of the epiblast which forms the stomodeum, lies the "primitive velum," separating the fore-gut from the anterior region of the future mouth. This hypo-epiblastic membrane will soon disappear, and the mouth will be formed part from the hypoblastic element of the fore-gut, part from the epiblastic element of the stomodeum. Both of these elements enter into the formation of the tonsils; while, in the meantime, nose and mouth are as yet unseparated, and all the possibilities of arrested or asymmetric development lie in the immediate future. In other words, in no part of the body are variations in growth, arrest or unsymmetric development more common than in this naso-faucial region. This complexity of development may account for that great variation in the tonsils which render them an exceedingly difficult structure to classify under a distinct standard of normality.

I think that within a strictly normal condition the upper extremities of the tonsils should appear, when the mouth is opened and the tongue slightly depressed, about on a level with the dorsum of the tongue at the plane of the fauces. The posterior faucial pillars above this point should not be concealed by an extension upward of the tonsils, nor should the latter be prominent at the sides of the base of the tongue. The free surface of the tonsils should not project into the faucial space beyond, or but very slightly beyond, the level of the free margins of the anterior and posterior faucial pillars, nor should these pillars be attached to the tonsils of their respective sides.

I think that this rather negative description of the tonsils will include that great variety of shapes and sizes which these lymphoid masses assume, even within limits that are not essentially pathologic. I believe, too, that a tonsil which transgresses my rather broad limits will do one of two things—possibly both. It will narrow the caliber of the oro-pharynx, thus interfering with proper respiration and deglutition, or it will press upon the base of the tongue or upon the velum palati, so as to interfere with the proper movements of these parts in phonation.

Two varieties of tonsils will do these things, the simple overgrowth, or simple hypertrophy, and the tonsil enlarged as the result of inflammatory processes, either now quiescent or still active. The tonsil simply overgrown stands out clearly defined from the sides of the fauces; is soft in consistence; is free from adhesion to surrounding parts, and is covered by the pale pink mucous membrane of the mouth.

The second variety of enlarged tonsil, however, presents most varied degrees of distortion. It is generally crossed by a wide band of connective tissue, commonly sweeping backward and downward from the anterior faucial pillar. Instead of such a simply formed capsule, the covering membrane may assume the form of bands lacing in different directions, like the meshes of a net or the intercellular walls of a honeycomb. In either variety the capsule renders the tonsil a hard, rubber-like mass, adherent to the anterior pillars, and often concealing the posterior pillars—to which it may also be attached—and extending upward almost to the base of the uvula. Such a tonsil may be smooth on its free surface, if the tissue has not been subject to frequent attacks of inflammation which have resulted in the formation of abscesses. It is apt to lie, much as the eye does between its lids, the capsule simulating the latter and producing a large, firm, smooth, rounded mass, whose margins are not sharply defined, but lose themselves in the surrounding tissues of the velum, faucial pillars and pharyngeal wall. If abscesses have occurred, the smooth surface will be broken by masses of irregular ragged projecting tissue, separated from one another perhaps by deep recessions or pockets, in many of which lie large masses of cholesteatomatous material.

There is still another form of tonsil which requires excision, an especially vicious variety. I refer to the hard nodular sclerosed tonsil, diffused irregularly over the space between the faucial pillars, usually adherent to them, and yet appearing to be small in size. Such a tonsil is almost entirely enveloped by a fibrous capsule, extending usually from the anterior pillar and enshrouding the free surface of the lymphoid tissue. By contraction of the capsule, perhaps, or from some other cause, the tonsil appears to be rotated backward, so that its free lateral surface presents backward and inward toward the posterior wall of the pharynx. By means of a blunt hook passed around its posterior margin, such a tonsil can usually be drawn forward, so that traces of an exposed lymphoid surface can be seen. This variety of tonsil readily takes on an inflammatory process, and even when not flaming out in vicious attacks of tonsillitis, is apt to maintain a condition of irritation or even inflammation in the pharynx and larynx.

Now the tonsillotome can excise only such masses of tissue as will engage within the ring-frame of its guillotine-knife. It can be of no service whatever for the sclerosed and contracted tonsil. It can not grasp the large diffuse encapsulated tonsil, because its frame can not embrace such a growth, whose bulk is not clearly defined, but which merges into the surrounding tissues, while its free surface is covered by a smooth hard slippery capsule. By firm pressure against the free surface of such a mass, a small amount of tissue may be squeezed through the frame of the tonsillotome, and when this shaving is gashed off the instrument has performed all that it can do.

In the case of the large simple hypertrophy, there is a limited field of usefulness for this instrument. The caliber of the ring-knife's frame varies from three-quarters of an inch to one inch in its long diameter; its width is seldom more than three-quarters of an inch. Its long diameter is usually parallel with the shank of the instrument, while, as shown long ago by Dr. Carl Seiler and others, it should always be set at a right angle to the shank, thus corresponding with the position at which the tonsils lie in the fauces. Even when so set, however, it will serve only for instances where the enlarged tonsils do not exceed the limits of its ring, while in not a few instances we see these simple hypertrophies so large as to extend from the base of the uvula almost to the free upper margin of the epiglottis. Yet in those cases in which the tonsillotome will surround and excise the bulk of the growth, it fails to remove those portions of the mass which very often are most productive of irritation. I mean the extreme lateral portions, in cases where the tonsil has so filled the tonsillar space as to press upward against the velum palati and outward against the faucial pillars. The free projecting mass may have been removed, but these offending portions remain, still causing pressure and irritation and ready to become inflamed. Now I believe that an operation even so comparatively simple as tonsillotomy had better not be attempted unless it is performed thoroughly and effectively. It seems apparent that the tonsillotome—that most generally used agent for excision—can be relied upon to do effective work only in that very limited proportion of cases which I have indicated. I can not but think that its imperfect work has done much to bring a certain discredit upon the operation of tonsil excision and may account for the not infrequent reports among the laity that the tonsils have "grown again" after an excision has been performed.

In place of the tonsillotome I prefer an instrument which permits of a dissection of the parts to be removed from the surrounding tissues, a method of precision which does not leave the amount to be removed to the chance of engagement or non-engagement of the ring-knife. This result is attained by the use of a small firm crocodile forceps (Farnham's forceps) held in one hand and by means of which masses of the tonsil tissue are grasped. The parts thus held are excised by means of stout-bladed scissors whose handles are set at an angle from the blades so that the field of operation is not hidden by the operator's hands. The bulk of the tonsil mass is quickly cut away, and then the parts lying between the faucial pillars are carefully drawn out and excised. In adults this work can be done under cocain. In children it is more frequently necessary to employ general anesthesia by ether, and use a mouth-gag. This is held by an assistant, who also holds the patient in a sitting position, thus permitting the blood to escape freely from the mouth. As in children hypertrophied tonsils are so commonly associated with hypertrophied adenoid tissue in the naso-pharynx, this method enables us also to combine the operation for the removal of this latter mass and the tonsillotomy under the one etherization. Dr. John Farlow of Boston, has devised a powerful cutting forceps for the tonsils, which he calls the "tonsil punch." It is a useful instrument in cases where the size of the patient's mouth permits of its employment. I have not found it of use in the mouths of children, owing to its large size. The operative procedures briefly indicated can be modified by the use of a great variety of instruments. Reference is simply made to this general method of operation as being in the great majority of cases vastly more effective than the action of the tonsillotome.

THE TREATMENT OF CHRONIC INFLAMMATION OF THE TONSILS.

Presented to the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY J. A. ELLEGOOD, M.D.
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The brevity of this paper will preclude the consideration of inflammation of the tonsils due to syphilis, tuberculosis, lupus and malignant disease. Chronic amygdalitis is primarily and essentially a chronic disease of the tonsillar crypts, and rational treatment must aim at their destruction or removal. While usually attended with hypertrophy, such is not always the case. The enlargement is often so slight as to be hardly appreciable, and the morbid process is of so low a grade as to present, except at occasional intervals, but few of the usual features of inflammation. Knight has divided hypertrophied tonsils into three groups: 1, those that are decidedly increased in volume and constantly project beyond the palatine arches; 2, flat diffuse tonsils which project but slightly into the fauces except during the act of retching; 3, those that encroach upon the pharyngeal space and yet do not appear beyond the free margin of the half-arches, for the reason that in consequence of repeated attacks of inflammation the interior pillar has become firmly adherent. In process of enlargement the tonsil carries with it the palato-glossal fold, which may be much thicker than normal or may be spread out over the surface of the tonsil in a thin veil of mucous membrane. In chronic inflammation much of the stroma may have degenerated into cicatricial tissue enclosing some infected crypts which may be partially or entirely closed. Such tonsils, although presenting an atrophic appearance, are in a state of chronic inflammation. The development of cicatricial tissue is usually the result of repeated acute attacks. Hypertrophied tonsils may be hard or fibrous, and soft or adenoid. As a rule, the older the patient and the longer the disease has existed the more dense, fibrous and highly organized the tissue; whereas the younger the patient and the more recent the hypertrophy the softer and more spongy the tonsil. While tonsillar hypertrophy tends to disappear with puberty, its ill effects upon the general health and permanent injury to neighboring organs before that age is attained may be very marked and are well known. The marked improvement which almost invariably follows its removal is a striking confirmation of its harmfulness. The treatment of chronic tonsillitis must be adapted to the age and general condition of the patient and to the condition of the inflamed tissue. The removal or destruction of the diseased follicles being indicated we have to consider the best means of accomplishing this end. But little can, at best, be expected of constitutional treatment, since whatever constitutional defects or weaknesses that are associated with chronic inflammation of these organs are rather the result than the cause of the tonsillar trouble. Local applications of iodin and astringents brushed over the surface of the tonsil for the purpose of causing their resorption are of questionable utility. Of still less use is the absurd practice of application of iodin or its compounds to the skin over the region of the tonsils. We will first consider the treatment of that class of chronic tonsillitis characterized by decided increase in volume and encroachment upon the faucial space. This form of hypertrophy is most frequently found in young children and is spongy in consistence. The surface of the tonsil is usually comparatively smooth and the growth more or less pedunculated. In some cases, however, the surface is irregular or lobulated, the irregularity being usually the result of repeated acute attacks of inflammation or to distended crypts. The best and most expeditious method of treating the majority of such cases is by excision with the guillotine. The choice of instrument must be left to the individual operator. The operator must select his cases in using the knife. He must assure himself that there is no tendency to hemophilia. The operation should not be done on acutely inflamed tonsils, for a lacunar tonsillitis is often diphtheritic. Neither should it be done during a general febrile condition of the patient nor during an epidemic of croup or diphtheria. It should be done with extreme caution on patients past the age of puberty. Every facility should be at hand in all cases for arresting hemorrhage. The tonsils of patients who have arrived at the age of puberty are likely to be more fibrous and it is in such cases that excessive bleeding is liable to occur. In fact, at that age, unless such growths are decidedly soft or pedunculated, the knife should be used with great caution. The best time for operating is in the morning, as it is well to have as long a time as possible to elapse before the patient assumes the recumbent posture. The use of general anesthesia is seldom necessary. The operation is not a very painful one and a little tact will, in most cases, obviate the necessity of general anesthesia. Any child that will quietly submit to etherization will as quietly submit to tonsillotomy, for the distress of the former exceeds the pain of the latter. When force becomes necessary to overcome the objections of the patient the shock of an anesthetic is no less than when the operation is performed without it. Besides requiring more time general anesthesia adds its own danger and increases the tendency to hemorrhage. When used, the choice of an anesthetic must be left to the operator. The writer prefers nitrous oxid. In using the guillotine without general anesthesia, on tractable patients with fairly large tonsils, a weak (2 to 4 per cent.) solution of cocain may be brushed about the base of the tonsil a few seconds before the operation is performed. In intractable patients its use may be well dispensed with. A strong solution or the prolonged use of cocain increases the tendency to hemorrhage. As much of the tonsil should be removed as projects beyond the half-arches. It is true that in many instances the removal of a thin slice from the surface will be followed by atrophy. This is explained by the fact that the constricted orifices of many of the diseased and distended crypts are removed, giving an opportunity for free drainage. Hemorrhage usually ceases spontaneously in a few minutes. When moderately excessive, cold water, ice and the gallo-tannic acid mixture will usually succeed in arresting it. The prejudice that exists against the use of the knife is not confined to the laity and the specialist will frequently be confronted by the necessity of resorting to other means of reducing the hypertrophy. Next to the knife the galvano-cautery is unquestionably the best agent. Its application is painful, even when cocain is used within the limit of safety. Few small children can be induced to submit quietly to its use. Before being used the lacunæ should be carefully sought and cleansed, and in some cases curetted. To sear the orifice of a dilated crypt filled with infectious material is but to intensify the condition it is intended to remove. A cherry red electrode should be well introduced into the crypt and retained for a few seconds. It should be made to burn its way out through the constricted orifice. As only a few crypts can be treated at one sitting, several treatments at intervals of from one to two weeks will usually be required. The reaction is usually not very great. Thorough curetting and cleansing of the crypts, followed by the application of tincture of iodin, or a bead of nitrate of silver or chromic acid fused on a probe, will in most instances be followed by good results. This treatment though protracted has the advantage of practicability. Few parents or patients will object to it. Cocain can be used and the operation made painless. The cocain solution should be carried well into the crypts by means of a cotton wrapped probe. More prompt results can be had if after cleansing and curetting, the tonsil knives devised by Dr. Leland of Boston are used. The olive-shaped tip of the knife is introduced into a crypt in the upper part of the tonsil and then turned downward and inward and made to come out by another in the lower part. The substance of the organ between these two holes is then cut through. This can be repeated from three to ten times at a sitting, until the surface of the tonsil presents the appearance of being full of slits. There is usually not much bleeding and this knife can oftentimes be introduced to its fullest extent without danger. Nitrate of silver, chromic acid, trichloracetic acid or tincture of iodin may be applied to the slits as well as to the crypts. This treatment will be followed by a satisfactory result in those cases in which from lack of consent or contraindication against the use of the knife, cleansing and applications of caustics alone can be used. Myles nasal curettes with malleable shanks are very satisfactory for curetting the crypts. The writer has not had satisfactory results from the application of hydrochloric acid as suggested by Kendall. The cold wire snare causes great pain. The galvano-cautery snare is sometimes useful in fibrous tonsillitis. In many instances the guillotine can be successfully used on the flat diffused tonsils by having an assistant press over the region of the tonsils, causing them to project into the pharynx. Only a small or thin portion may be removed, but the thin slice will contain the constricted orifices of several crypts. Many of the methods suggested for the treatment of the first group of hypertrophies will be applicable in the treatment of the second and third. The writer has obtained most satisfactory results from galvano-puncture in flat diffuse tonsils. If after the destruction of as many crypts as can be found there still remains a considerable portion of hypertrophied tissue, its reduction can be speedily accomplished by puncturing the stroma with a galvano-cautery wire. About half a dozen punctures distributed at about equal distances and extending to a depth of from one-fourth to one-third of an inch should be made at a sitting, and repeated in from ten days to two weeks. Dr. Arthur A. Bliss has devised a pair of scissors for the removal of this class of hypertrophies. Leland's curved tonsil knives are especially adapted to separating the adhesions of the tonsil from the anterior pillars of the fauces, after which it is usually possible to remove the hypertrophy by means of the guillotine. A great variety of reflex phenomena results in adults from chronic inflammation of the lacunæ. There may be little or no appreciable hypertrophy of the tonsillar tissue and the disease may be limited to a few crypts. These will often require careful search and be found, as a rule, at the upper part of the tonsil, the orifices being hidden behind the palatine folds. These diseased crypts contain decomposing cheesy material made up largely of leptothrix elements. They may contain chalky material. They should be emptied, cleansed, curetted and slit down to the lowest part. The thorough use of the galvano-cautery point will make the cure more certain. Fibroid degeneration of the stroma probably causes little trouble other than constricting the orifices of the crypts and preventing the escape of their contents. Chronic abscess, though undoubtedly having its origin in infectious material that has gained entrance through the crypts, is largely confined to the peri-tonsillar tissue. As much of the abscess wall should be removed as possible, the surface thoroughly cleansed and curetted, and brushed with pure carbolic acid.

Equitable Building.

Gelatin as a Hemostatic.—Carnot states that a solution of gelatin with a little sodium chlorid applied locally acts promptly as a hemostatic, healing by first intention being favored. The solution employed contained 5 per cent. of sodium chlorid. It was sterilized before use and brought to the temperature of the body at the time of application.—*La Presse Médicale.*

PERITONSILLITIS—ITS ETIOLOGY AND TREATMENT.

Presented to the Section on Laryngology and Otology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY KATE W. BALDWIN, M.D.
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Peritonsillitis, quinsy, phlegmonous pharyngitis, pharyngitis abscedens, peritonsillar abscess, parenchymatous tonsillitis and the other names under which this condition is described matter little, but to find the cause and relief of this frequent and most painful throat affection is of immense importance to those suffering from it. Schech classes it, next to tuberculosis, the most painful.

It is without doubt of bacterial origin. Cold, rheumatism, gout, trauma, in fact anything which lessens the resistance of the tissues, may predispose to, but not act as the exciting cause. Rheumatism, cold, trauma, etc., do not go on to suppuration unless accompanied by some member of the great family of bacteria; here we probably have a streptococcus. The tissues involved have been by many writers very loosely considered. Some state that the glandular tissue is primarily involved, the inflammation extending to the surrounding tissue. It is even described as parenchymatous tonsillitis. Others claim that it commences in the surrounding tissue and that the tonsil is only secondarily, if at all, involved. It may, and not infrequently does, follow an acute lacunar tonsillitis; however, quinsy proper is a peritonsillitis and should not be confounded with tonsillitis, a much less painful and less dangerous condition.

The locality is called by Chiari the spatium pharyngo-maxillare; and is bounded by the tonsil, the internal pterygoid muscle and the palatine arches. The swelling may extend into the post-nasal space, causing complete obstruction between the nose and throat and may also descend toward the larynx producing edema of the latter and threatening dyspnea.

Untreated the disease usually goes on to suppuration, every day adding to the pain and all other symptoms, until the pus is evacuated, which usually occurs within fourteen days, through the anterior palatine arch, but may be through the posterior palatine arch or below the tonsil. The pus may burrow into the cellular tissue of the throat, into the esophagus, into the mediastinum, the submaxillary gland or the muscles of the tongue. There may be erosion of the carotid artery, or general septicemia may follow. In one case recorded as quinsy, there were repeated hemorrhages, causing the death of a patient. Even in untreated cases the prognosis is good, exceptional cases however occur. Much suffering may be avoided by painstaking and thorough treatment, and it is to this that I wish to call special attention.

Many remedies have been suggested for the treatment of this painful affection, but from none have I seen the good results that come from the use of the spirits of turpentine. I do not find it mentioned in the books, but claim no originality in its use for the treatment of quinsy, it having been suggested to me by Dr. ———, who some five years ago was doing special work at the Philadelphia Polyclinic, he having learned of it through a German physician. There being an abundance of material at the Polyclinic, Dr. Freeman was quite glad to have me test its efficacy, and kindly turned over to me all the cases that presented.

For several years I have treated all cases coming under my observation, both private and dispensary, in the following manner. Thorough cleansing of the throat and nose with a mild alkaline solution, followed by the application of the spirit of turpentine, equal parts with the compound spirit of lavender, disguising the taste of the turpentine by the addition of a few drops of the oil of anise or gaultheria. In some cases I use the turpentine full strength. This is applied to all the inflamed tissue, as thoroughly as possible, with cotton on a fine applicator, behind the soft palate, into the crypts of the tonsil and where possible between the tonsil and the pillars of the fauces. For use between visits, I order the patient to apply the above mixture every one to three hours. A mercurial followed by a saline laxative is usually indicated—in the rheumatic or gouty subject appropriate constitutional treatment must be instituted. In other cases I use codein to control the pain. As much nourishment as can be taken, either hot or cold as most comforting to the patient. If seen early, this treatment will abort an attack; later, will prevent the formation of pus and the involvment of the opposite side. It will, in nearly all cases prevent involvment of the opposite side even though pus be already present on the one affected. From a number of physicians, using this plan of treatment, I have had most favorable reports, one reporting equally good results from its use in tonsillitis.

Without detailing special cases I will say that all I have thus treated testify in favor of this over all other methods of treatment, many of these patients having had repeated attacks and treatment by many different methods. After the turpentine treatment some have never had a second attack, others, who were accustomed to attacks of peritonsillitis every two, three or four months have gone two or three years without any recurrence. In advanced cases where the mouth can be but slightly opened, it will require skill in the use of light and instruments to thoroughly treat a case. After the acute attack has subsided the throat and nose should be put in as good condition as possible, great care being taken to remove all adhesions between the tonsil and the surrounding tissue. Instruct the patient to report at once upon recurrence of symptoms pointing to another attack.

As a germicide Koch reports: "Oil of turpentine destroys anthrax spores in five days but failed to do so in one day. The development of anthrax spores is prevented by 1-75,000."

Rudling states that the addition of 1-200 to nutrient gelatin prevents the development of bacteria.

I have said nothing of symptoms, they being so characteristic that once recognized can scarcely be mistaken. The position of the head, and the peculiar contortions of the face with every attempt at swallowing, with more or less fixation of the jaw, is quite sufficient for a diagnosis, in the majority of cases, without even inspecting the throat.

DISCUSSION ON PAPERS OF DRS. BLISS, ELLEGOOD AND BALDWIN.

Dr. SEISS—The tonsil exists in all the higher mammals and is recognized by all comparative anatomists. I like Dr. Bliss's scissors very much. In connection with the use of turpentine mentioned in Dr. Baldwin's paper, it occurred to me that I get the best results in such cases from pine-needle oil, used in an atomizer.

Dr. MYLES—Follicular tonsillitis has given me more trouble than any other form. I have found that this condition in early childhood will spread and extend upward into the soft palate very deeply. I have never been able to use the scissors and knife in these cases as deeply as I would like, because when I seized the tonsil with the forceps it would break loose. I have used the punch forceps to take out quite large pieces. You must work quickly. My experience is that peritonsillar abscess is a certain form of cold abscess which is likely to recur. Two or three times a year the locality undergoes a rapid suppuration for several days. As to the turpentine treatment, I remember a queer experience I had in the South. An old farmer asked me why doctors spent so much time on a little thing like the throat, and added: "When any of my niggers have sore throat, I mix turpentine, sulphur and lard and rub it in, and they get well."

Dr. COULTER—I apprehend that no one instrument will be satisfactory in the hands of all operators. We become accustomed to a certain form of instrument, and each can do better work with his instrument than any other man can, and vice versa. I understood a statement in Dr. Bliss's paper, that he said the top of the tonsil should be a little above the level of the tongue.

Dr. BLISS—That is when the mouth is open.

Dr. COULTER—I have found that the larger part of the tonsil was buried almost under the pharyngeal aponeurosis, often being completely enveloped in the pillars. I am satisfied that the tonsil extends higher up than we have ordinarily thought and that it is almond shaped rather than olive shaped. Dr. Ellegood says that in all these cases the tonsils should be destroyed. I contend that destroying the tissue and leaving it to cicatrize is not necessary, though it may be proper in a certain number of cases. Theoretically it may be all right, but practically it is not. You can not tell how deep into the crypts you are going, and, especially in singers, you leave a cicatricial tissue that makes the case worse than it was.

Dr. BLISS—Dr. Seiss was quite correct in thinking that I did not mean to remove every large tonsil simply because it was large. I referred only to the class of tonsils indicated in my paper, which was on the use of the tonsillotome. I have used the tonsil punch, and it is an excellent instrument, but rather a clumsy one. I think that if Dr. Myles would use the crocodile forceps he would have no trouble in holding the tonsil. These will grasp the tonsil so firmly that it can not slip away. As to the high distribution of the tonsils, I have not found that as a normal condition; it is more a pathologic condition. Such tonsils are more likely to contain material in their crypts. There are many such tonsils as the result of a pathologic process.

Dr. ELLEGOOD—I have never had any difficulty in applying the cold snare to the crypts. I prefer not to use galvanopuncture, except in cases of flat tonsil where the orifices of the crypts are difficult to find. The galvano cautery merely destroys the surface.

MUNICIPAL CONTROL OF DIPHTHERIA.

Presented in the Section on Laryngology and Otology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1-4, 1897.

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CHICAGO, ILL.

The prevention of disease is the province of the municipal health department. The treatment of disease is in the hands of the medical profession whose members have spent time and money to acquire the necessary knowledge, and who stand within that sacred circle of domestic confidence essential in the treatment of disease.

The only tenable ground the munipal health department can take is that of assisting the family physician and there should be no friction between them. The health officer should be careful not to infringe upon the prerogatives of the family physician, who should be high-minded and generous enough to commend the enforcement of public hygiene and respect a power that is greater and broader than his for the prevention of disease.

The improvement of a race or species can only be accomplished during its period of development. No scientific mind can study the effect of ptomain poisoning on the growing child and fail to appreciate the importance of preventing contagious diseases in childhood.

No child can reach the same mental and physical development after severe ptomain poisoning. The intellect demands for its symmetrical development the perfect transmission of accurate impressions from the outer world. These come through the five senses. The partial closing of one of these avenues means a lessened power of acquisition and a one-sided mental growth.

No one, not so afflicted, can appreciate the disadvantages of impaired hearing. A child with this defect has a tendency to become slow and morose; is misjudged and misjudges others. Many men and women, who otherwise would have been useful members of society, have been miserable failures because of impaired hearing.

The results of diphtheria ptomain poisoning are not so well known as those of scarlet fever, because that portion of the economy most susceptible to the poison is the vital centers. Hence the difficulty of definitely estimating the insidious and far-reaching effects of the poison. The malignant type of diphtheria may some times be followed, sooner or later, by impaired kidneys, paralysis of the recti muscles causing strabismus, partial nerve destruction, paralysis of the larynx, or a partial arrest of general development. Complete restoration to normal health following any of these conditions depends upon the extent and severity of the injury. As before stated, it is improbable, most often impossible, that these effects may ever be effaced.

Carlo Ceni[1] and Robert J. Berkley have made studies of the lesions induced by the action of diphtheria poison on the nerve cells. Both made the same conclusions. Dr. Berkley says: "From the studies conducted on the cerebra of diphtheritic guinea pigs, it would appear that all severe infections were followed by brain cell degeneration, a degenerative process unaccompanied by inflammatory reaction and a tendency to atrophy and necrosis."[2]

During 1896 I administered antitoxin to a large number of children in various stages of profound ptomain poisoning with 75 per cent. recoveries; but I noted that quite a number of these died during the following six months. The family physicians diagnosed the causes as Bright's disease, inanition, marasmus, appendicitis, summer complaint, etc. Some of these deaths were no doubt due to gradual brain cell degeneration and necrosis induced by the Klebs-Loeffler toxin.

Diphtheria is both a preventable and a curable disease. A death from diphtheria is now considered by the best physicians in the same light as puerperal fever, namely, the result of ignorance in the physician, or attendant, or both. Could every child have the fullest scientific protection, there need not be a death from Klebs-Loeffler diphtheria. Our duty to the race demands that every precaution should be taken to prevent contagious diseases among children. As long as the child remains at home, the responsibility of giving this protection rests upon the parent. As soon as the child is sent to the school, the store or the factory, it becomes a ward of the State and should have its protection. The prevention of diphtheria then divides itself into, the protection of laboring children, the protection of school children and the children at home.

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[1] Carlo Ceni, Riforma Medica, Vol. 1, 1896.

[2] Johns Hopkins Hospital Bulletin, Feb., 1897.

Over thirty-five thousand children are working for wages in the city of Chicago. In the crowded cars, department stores, and factories they are constantly subjected to contagion and become one of the most prolific means of its spread. They carry the germs home and infect the other members of the family, who may be attending school or kindergarten. These in turn infect their playmates. The doors of our public schools are open to children from any home whether over a stable or on the boulevard, whether it be composed of one room or twenty; whether it be as healthy as sanitary science can make it or filthy as the abode of savages. The public school room below the grammar grade is a perfect clearing-house for the exchange of mouth germs. The average child is not troubled by the niceties of older people, who, however generously inclined, do not exchange eatables and personal effects with such freedom as is done in school. Children at home are usually infected by those members of the family who are at work or in school; hence the prevention of the spread of contagion in the school and factory is one of the most efficient ways of protecting the home.

Competent medical supervision and inspection of schools and every place where there is child labor, offers a great field for work the benefits of which will extend beyond those directly affected. There are many pupils in our public schools with defective sight and hearing that could easily be remedied if discovered early and properly treated, while child labor is employed under conditions the heathen nations would not tolerate.

The State has every right to throw rigid restrictions around child labor for her own protection. Unless done in harmony with the laws of mental and physical development, it works a two-fold injury; first to the child itself, and second, to the coming generations.

Medical inspection should be done with the organized system that characterizes scientific work. The services of the best specialists should be obtained to direct the efforts of the medical inspector, for the most valuable results await the adoption of scientific methods in the formulation of laws governing child life.

However valuable it would be in other diseases, medical inspection would derive its most brilliant results in the prevention of diphtheria. During the winter season when it is most prevalent, the inspector should instruct teachers and employers in the symptoms of infection. He should make cultures from the throats of those who have been exposed to contagion as well as from returning convalescents before permitting them to re-enter school.

Some of our cities are a long way from the adoption of scientific medical inspection and until municipal authorities see the feasibility of such methods, we must control diphtheria with the best means we have at hand.

During the winter of 1895–96 the southern half of the city was put in my care by the Chicago Health Department, to assist in controlling a threatened epidemic of diphtheria.

Having given ten years of special study to the disease, and tried faithfully every remedy that my judgment approved, or the experience of others recommended, I was well prepared to judge of the value of antitoxin. The experience of that epidemic taught me two things: The value of antitoxin as a curative agent, and the importance of an early bacteriologic diagnosis as the most important measure for the prevention of the disease.

If within a few hours of the first call of the physician to see an inflamed throat, the infectious nature of the disease is known and the child isolated, the spread of the infection may be stopped. Those who have seen families, schools and whole communities infected before the malignant nature of the disease was discovered, will appreciate the importance of having infection stopped at the first case.

The bacteriology of diphtheria demonstrates the great rapidity with which the Klebs-Loeffler bacilli multiply under favorable conditions. The microscope has enlarged our vision and enabled us to see these germs, while scientific methods have formulated laws governing their existence. It is the application of these laws that gives us control of this disease; hence the successful prevention of diphtheria depends upon a thorough knowledge of the bacteriology of anginas.

All anginas manifesting membrane should properly be described as diphtheria, since its derivation is from the Greek word meaning membrane. However, since the Klebs-Loeffler bacillus has been found to be the chief cause of mortality in anginas, only those cases where it is present are usually called diphtheria.

The germ or germs which are the chief causative factors in producing this disease are most sensitive to environment, by which is meant all the conditions influencing the life of the germ as well as that of the patient who furnishes the soil for invasion.

Environment is continually changing. No two consecutive days have the same amount of sunshine, heat or moisture. Each season brings conditions which have their influence on the germs of the membranous anginas. With a knowledge of these facts it is readily comprehensible why the anginas of one year, or of one season, should differ from those of another. If the conditions are favorable to the virulence of a certain germ, it will prove the causative factor of the anginas of that year, subsiding into a secondary position with new conditions which favor the virulence of another germ.

The bacteriology of the anginas of 1896–7 has presented many interesting differences from those of last year. At that time, nearly 75 per cent. of all inflammations, including those causing stenosis of the larynx, were due to the Klebs-Loeffler bacilli. At the close of this year, it is some member of the streptococci family that most often causes the invasion.

Following its invasion, each germ has a definite train of clinical symptoms characteristic of itself, and were it not for the fact that there are so many mixed infections, there would be little difficulty in making a diagnosis without the microscope. But it is seldom the case that a culture reveals only one germ; others are nearly always present, it may be as accessories in a minor degree to one germ causing the lesion.

In every mouth there are a number of pathogenic germs which are impotent except when favorable conditions are presented for multiplication. If constitutional resistance becomes weakened toward any one of the germs present, that one may become the exciting cause of inflammation.

This fact must be kept in mind when examining cultures microscopically, namely, to determine the invading germ and treat the case accordingly. The malignancy of a germ is usually determined by the rapidity of its multiplication. When a germ acquires this malignancy, it is probably because the patient's antitoxic power is reduced. For instance: The case of a child was diagnosed as Klebs-Loeffler diphtheria and antitoxin administered followed by typical reaction and recovery. Three weeks later a second inflammation occurred, culture showing mixed infection with Klebs-Loeffler bacilli present. Antitoxin was again injected with no reaction. The case followed the usual course of a streptococcic angina. The patient was already antitoxinized against the Klebs-Loeffler bacilli, and although the germ was present, it had but little influence in the inflammation.

In laryngeal inflammations the staphylococcus causes simple spasmodic laryngitis; the streptococcus a stenosis of long duration, sometimes requiring reintubation or the substitution of tracheotomy. If the Klebs-Loeffler bacillus causes the stenosis, it is possible to be as positive of the action of antitoxin as of morphin; while the ratio of mortality becomes 15 to 20 per cent. instead of 80 to 90 per cent.

The staphylococcus is nearly always present in the fauces, and is always present in slight inflammation of the tonsils. The crypts of enlarged tonsils contain them and a slight cold causing congestion of the mucous membrane produces the necessary condition for disease.

Occasionally the staphylococcus takes on considerable malignancy, the temperature rising to 104 and 105, causing considerable constitutional disturbance. It is the invasion of this germ that results in simple spasmodic laryngitis. One of the chief characteristics is the short duration of the inflammation.

The streptococcus is the next germ in malignance, and has a wide range of virulence depending upon the conditions under which the invasion takes place. The point of invasion may be in the tonsils, but the entire tissues of the fauces are more likely to be involved, producing a dark red appearance with little or no membrane for thirty-six or forty-eight hours. The membrane is always small in proportion to the amount of inflammation. There is a tendency for the inflammation to spread back of the tonsils up into the posterior pharynx, invading the Eustachian tube, causing great difficulty in swallowing, also impairing the hearing. This is the most painful of all anginas, the most difficult to relieve and the slowest to recover. While the temperature in staphylococcus infection is high in the beginning and reaches a maximum in twelve or twenty-four hours, the temperature in streptococcus infection gradually increases to 102 and 103, remaining stationary for two or three days until influenced by treatment.

Symptoms are neither so apparent nor so alarming in the invasion of the Klebs-Loeffler bacillus. The germ seems to have an anesthetic action locally, and acts as a constitutional depressant. There may be little or no pain. The patient will be quiet, gradually going into a stupor. On examination of the fauces, membrane will be present either following primary inflammation or at first inspection. True Klebs-Loeffler diphtheria is the least painful of all anginas. The invasion usually takes place in the fauces, spreading to those parts of the mucous membrane which are susceptible, such as the nasal passages, the posterior fauces and the trachea.

During the past year the pseudo-bacillus has frequently appeared in the cultures. My observation leads me to think this germ is the Klebs-Loeffler bacillus changed in its morphology owing to the soil upon which it grows. My reasons are as follows:

1. Cases have resulted fatally with this bacillus as the invading germ, giving every clinical evidence that death was caused by ptomain poisoning.

2. The genuine Klebs-Loeffler diphtheria has been contracted directly from cases of pseudo-diphtheria.

3. The morphologic change between the pseudo- and the Klebs-Loeffler bacilli is no greater than is seen by growing the Klebs-Loeffler bacilli on blood serum and agar agar; or the change which the Klebs-Loeffler bacillus undergoes from the beginning to the end of a case of true diphtheria.

For these reasons, I advise the administration of antitoxin in cases where the pseudo-bacilli appear, and in most of these cases typical reaction follows.

Temperature is considered an important indication of the gravity of a disease. This rule must not strictly govern anginas, as the highest temperature is caused by a germ of the least malignancy, namely, the staphylococcus. In the worst form of Klebs-Loeffler diphtheria there may be not only an absence of increased temperature, but it is sometimes sub-normal.

The accompanying tables of the clinical symptoms of diphtheritic diseases during the first, second and third thirty-six hour periods are not assumed to be perfect, as they are compiled from a limited number of years' experience; but it is hoped they will form a substantial basis for further observation.

CLINICAL SYMPTOMS.

First Thirty-six Hours.

Diphtheritic diseases.	Temperature.	Local condition.	Mental.	Urine.	Bowels
I.—Staphylo-diphtheria.	Rises rapidly to 103, 105.	Swoll'n tonsils with membrane appearing around follicles. Headache; pain.	Bright.	Diminished; highly colored.	Constipated.
II.—Strepto-diphtheria.	Rises gradually to 101, 103.	Invasion usually extended to large part of pharynx, posterior nares; membrane does not form rapidly; mucous membrane congested; covered with thick mucus; more pain than I.	Fretful and easily irritated.	Diminished; highly colored.	Constipated.
III.—Klebs-Löffler Diphtheria. 1. Mild.	99 to 101.	Redness with little or no swelling; small amount of white membrane; slight pain.	Normal.	. . . .	Constipated.
2. Moderate.	99 to 101.	Redness over more extended area than I; any part of pharynx, larynx and trachea.	Normal.	Norm'l or less in quantity.	Constipated.
3. Malignant.	99 to 101.	Redness, but not painful as strepto-infection; may be large or small amount of membrane in sight.	Dull; careless.	Normal.	Constipated.

Second Thirty-six Hours.

Diphtheritic diseases.	Temperature.	Local condition.	Mental.	Urine.	Bowels
I.—Staphylo-diphtheria.	Decreasing, 101.	Membrane white with definite edges; less congestion.	Normal.	Normal.	Open; resp'nded to cathartics or enema.
II.—Strepto-diphtheria.	Stationary, 102, 103.	No improvement; thin membrane; tonsils will be covered if large; much pain in swall'wing.	Fretf'l loss of sleep.	Dark Color.	Inactive.
III.—Klebs-Löffler Diphtheria. 1. Mild.	Stationary, 100, 101.	No improvement unless antitoxin has been given; membrane formed.	Normal.	Normal.	Active
2. Moderate.	Stationary, 100, 101.	No improvement; membrane formed. Process stationary.	Normal.	Albumin.(?)	Constipated.
3. Malignant.	Stationary, 100, 101.	Membrane extending, glands may be involved.	Stupor.	Albumin. Less.	Normal or inactive.

Third Thirty-six Hours.

I.—Staphylo-diphtheria.		Normal.	Nearly normal.	Normal.	Normal.	Normal.
II.—Strepto-diphtheria.		Decreasing.	Beginning to improve if no abscess has formed.	Norm'l if no pus formation	Normal.	Normal.
III.—Klebs-Löffler Diphtheria.	1. Mild.	Decreasing.	Improvem't: membrane disappearing	. . . .	. . . .	. . . . .
	2. Moderate.	. . . . .	May change to 1 or 3 (III).	. . . .	. . . .	. . . . .
	3. Malignant.	Stationary or decreasing.	Membrane extending or glands enlarged; bleeding at nose; heart irregular: fetor from membrane.	Stupor, can be roused.	Albumin; anuria.	Paralyzed.

It may be observed from these tables that the symptoms which are most likely to attract the parent's attention to the child's throat, namely, pain and fever, are produced by the most common and least harmful germs. The Klebs-Loeffler bacilli may be present without any modification of clinical symptoms until the system is permeated with ptomain, and evidence of ptomain poisoning appears. If the nature of the disease has not been discovered and antitoxin given before this stage is reached, the chances for recovery are greatly reduced—if not entirely shut off—for, as before stated, the action of diphtheria poison is destructive. Antitoxin can not restore destroyed kidney tubules, blood corpuscles or nerve centers. It must be given in time to prevent this destruction. A culture from the throat will show in a few hours if the germs are present, and upon the proper use of the culture, more than anything else, depends the control of diphtheria. With it, we can tell not only the presence of the germ in those who are sick, but can estimate the exact limit of infection in those who have been exposed to the contagion.

The earlier the diagnosis the greater its value. To get an early diagnosis without infringing on the rights of the family physician is the problem which the health department must solve.

In the City of Chicago, and I presume it is more or less true elsewhere, the major part of practice is in the hands of physicians who graduated in medicine before there was a department of bacteriology. These physicians are the first to see cases and they are the proper ones to take cultures. If they have to call in an expert to make the culture, or have it done at an extra expense, the occasions when they find they were needlessly alarmed will cause them to neglect this important measure.

I have found that physicians are influenced in making a culture by the convenience with which they can have it done. The introduction into the culture outfits of the Chicago Health Department of the small metal boxes for culture media has had much to do with the large number of cultures obtained by the department. They were devised by me to meet the requirements of the general practitioner. Properly prepared, they will keep indefinitely. They are strong, light and small, so that several can be carried in the pocket or bag without taking valuable space. After inoculation the box can be placed in the watch pocket near the body and incubation begins at once.

What is of greatest importance, these boxes may be examined many times during the development of the culture without affecting its progress. This is done by the Klatsch method—the pressing of a clean cover glass on the surface of the serum. A sufficient number of the germs will adhere to be fixed and stained, at the same time preserving their characteristic arrangement. Thus the rapidity of the growth can be noted and something of the malignancy ascertained. A diagnosis can often be made as soon as the box can be examined. When this can be done it is of importance in indicating malignancy.

During the past year I have made an immediate diagnosis in about one-third of the diphtheria cultures; another third required six hours incubation, and the remaining third ten hours.

A physician can carry one of these boxes in his pocket and when called to a suspected case of diphtheria, with a little absorbent cotton on a probe, he can inoculate the box and prescribe treatment. Diphtheria or the health department need not be mentioned. By his next visit he is fortified with a positive diagnosis. If he has to send to a station for a cumbersome outfit, inoculate and send it to a distant laboratory and wait eighteen to twenty-four hours for a diagnosis he is placed in an embarrassing position. His procedure has alarmed the parents and his uncertainty will not inspire confidence. If the report shows no necessity for the alarm, confidence in his judgment will not be strengthened and he will naturally avoid a repetition of the occurrence.

To test the efficacy of convenient methods, a sub-laboratory was established at my office by the health department during the past winter for the use of the physicians on the South Side.

Until December 15 there was only now and then a sporadic case of Klebs-Loeffler bacilli among the numerous cultures showing streptococci infections. Then in three days I had nineteen rapidly growing cultures of the Klebs-Loeffler bacilli taken from patients among the wealthy families of Kenwood. The family physicians in these cases received their diagnoses, some of them in two, all of them within six hours; the patients were immediately isolated and given antitoxin. All recovered and there was not a second infection from any of the cases as far as could be learned. Several deaths occurred in the practice of those physicsans who did not use a microscope to make a diagnosis.

During the past season I have made nearly five hundred bacteriologic examinations. About 30 per cent. of these revealed the Klebs-Loeffler bacilli. The records show that those physicians who availed themselves of the bacterial diagnosis had no deaths from diphtheria.

No small part of this excellent result was due to the high quality of the antitoxin that was used.

The health department renders the physician valuable assistance when it places within his reach a reliable grade of serum. Not having the government guarantee possessed by the European physician the next best thing is to possess the guarantee of our municipal health department, who conserves its own interests in protecting the interests of the people. The health authorities can acquaint themselves with reliable manufacturers of antitoxin and in the laboratory they have the means of testing its quality. Antitoxin should be furnished to physicians at as low a rate as possible. Diphtheria is emphatically a disease of the poor. To avoid delay and not endanger life a physician must often furnish the antitoxin and wait for his compensation, if he gets it at all.

The injection of serum by health officers should be avoided in all cases where it can be done by the family physician. Free dispensaries, hospitals and medical colleges do enough to depreciate the value of a doctor's work without the health department contributing its services.

Some producers of antitoxin advise its administration without waiting for the bacteriologic diagnosis. This may be justifiable in laryngeal cases, but in not one case out of a hundred will the interests of the patient suffer if a culture can be made in four hours. Antitoxin is a highly organized product of unknown properties requiring the highest skill in its manufacture, and can only be produced by carefully followed rules requiring months of work and involving large expense. The failure of a single step in the long process will affect the product. This remedy is injected directly into the tissues and is absorbed by the blood. The action is so rapid that if unfavorable one patient is beyond hope before any known means can counteract the effects. These facts make it imperative that the utmost consideration should be given the subject of when and how to administer antitoxin. I have taken the serum myself and know its immediate effects are painful. I have also seen most alarming symptoms follow its administration. Hence the indiscriminate injection of antitoxin in cases of angina is dangerous, unjustifiable and unscientific.

Every city has its own problems to solve. In evolving a plan for controlling diphtheria all conditions of municipal life must be considered. Grades of diphtheria differ in New York, Paris, London and Chicago, as the environment of those cities differ. If the mortality of diphtheria in Chicago is lower than that in New York it is only fair to say that it is probably due more to the less crowded condition than to superior equipment.

Our position of health commissioner is a political one with a term of but two years. This is a short time to institute and carry out any elaborate scheme of hygienic reform. But it is long enough to set in motion plans of work whose beneficial effects will not permit them to be dropped by the next administration.

The municipal control of diphtheria then means: 1. The enforcement of those hygienic laws which will increase physiologic resistance and thus remove predisposition to the disease. 2. It must protect children from contagion by competent medical inspection in schools and public places of work. 3. It should furnish physicians convenient means for early bacteriologic diagnosis. 4. It should obtain and furnish the best possible quality of antitoxin.

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DISCUSSION.

Dr. **REYNOLDS**—It seems to me that the logical result of all this antitoxin and germ study is that every physician who visits families and comes in contact with them should be able to make a diagnosis in from two to four hours. It is the function of the department of health to prevent disease.

Dr. **ROOT**—This very important subject concerns not only ourselves as specialists, but the general practitioner as well. One point has not been touched upon, and that is the necessity of having these cultures made and the bacteriologic examinations continued after the apparent symptoms have cleared up. The difficulty is that after the case is apparently well the children are allowed to go to school and about the streets while they are perfectly capable of infecting others. In Hartford we insist that every case shall be reported at once to the health board. Test tubes are kept, on ice, in the leading drug stores. When a physician sees a suspicious case he can drive to the nearest drug store, get a test tube, make his culture and have it sent at once to the health board. A record of the case is made and kept, and is inspected by the health inspector, and before the child is allowed to go out it must be demonstrated that there are no more bacilli in the throat. When the throat is apparently well he may still infect others by expectoration, etc.

Dr. **VANSANT**—I do not think that any such discussion should proceed without a protest against a diagnosis of diphtheria based solely on the presence of the Klebs-Loeffler bacillus. It is not a simple thing to diagnose a case as diphtheria, and we should proceed carefully. A diagnosis based on the presence of this bacillus alone is not necessarily correct. I made a series of cultures from 100 patients last winter, and with the aid of our bacteriologic department examined the secretions in chronic nasal catarrh. I excluded every case that had any clinical signs of diphtheria. One of the first cases I sent was rhinitis. A report came back that typical Klebs-Loeffler bacilli had been found and the case must be isolated at once. The case was a true atrophic rhinitis, but every time I examined I got a beautiful culture of the bacillus. There was no sign of diphtheria whatever. From 25 to 50 per cent. of the cases of chronic nasal catarrh contain the bacillus. I protest against isolating cases simply on the bacteriologic examination. We should also have well-marked clinical signs.

Dr. **JURIST**—In a town not many miles from here two police surgeons made cultures from each other's throats and sent them to the city bacteriologist. They were promptly quarantined the next day, though there was no sign of sickness. When physicians depend on one point in any diagnosis they fall in error. We have also in laryngology attached too much importance to bacteriologic investigation. I believe that in 95 out of 100 cases the disease can be determined without bacteriologic investigation. Isolate your patient for a day or two and you will often see that a case can appear like diphtheria and not be diphtheria.

Dr. **RANDALL**—The nasal cases are not so apt to convey infection, and yet I know of many a case that has originated in this way. I know a resident who had such a condition in his nasopharynx, and he was responsible for several cases of diphtheria in the hospital and finally had a plain case of the disease himself. Cases are certainly infectious in that stage and call for recognition. The difference between faucial and nasal cases must be borne in mind.

Dr. **JAQUES**—The Klebs-Loeffler bacillus may be in many throats without producing diphtheria. Physical resistance is what prevents children from taking diphtheria. About this time of year most children have the bacillus in their throats without producing diphtheria. In winter the conditions are more favorable for its occurrence. Great care is necessary. A person who has the bacillus in his throat may not have diphtheria, but he may come in contact with a child who is susceptible and cause the death of the child. I have known mothers who had this condition of the throat to inoculate their children and cause their death. For the protection of the physician, he should know the origin of every case of angina that comes under his care. He can then put the bacteriologic diagnosis with the clinical symptoms and know what the disease is.

REMARKS UPON THE SURGICAL TREATMENT OF MALIGNANT DISEASE OF THE LARYNX.

Presented to the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY D. BRYSON DELAVAN, M.D.
NEW YORK.

While operations for the cure of malignant diseases of the larynx have generally resulted in shortening rather than lengthening the lives of patients so operated upon, the experience of the past few years in certain parts of the world has been somewhat encouraging. Indications are beginning to appear which suggest that for this class of patients there exists a not entirely unpromising future.

Within the past two years several papers have been published in which the proportion of successful operations has been unusually large, and while the actual number of patients operated upon has been too small to establish any positive conclusions, and the dates of most of the operations have been too recent to admit of a complete study of the cases themselves, there can be no question that the work recorded in them is, on the whole, worthy of careful consideration. The varieties of operation which have lately challenged attention by reason of the improvements which they have offered may be divided into three groups: 1, thyrotomy, with or without partial laryngectomy; 2, complete laryngectomy by the method adopted in Solis-Cohen's case; 3, complete laryngectomy in cases of extensive laryngeal disease with glandular involvement. Examples of all three are beginning to multiply to such an extent that it will not be long before we shall have a collection of details sufficient to afford a fairly positive knowledge of their real value, together with a fund of technical knowledge relating to the subject which can not fail to be of material aid for future guidance.

A short consideration of these methods may not be without interest. The first variety, while advocated by many surgeons here and abroad, has been studied and practiced in this country chiefly by Prof. Clinton Wagner of New York, and by Mr. H. T. Butlin and Dr. Semon in London. It consists in performing thyrotomy and removing as much of the diseased tissues as may be necessary. Mr. Butlin, in the main agreeing with many of the best surgeons of the day, has advanced the following propositions:

1. Every malignant growth of the larynx of intrinsic origin which can be dealt with should be treated by an operation in the absence of a decided indication to the contrary, and the operation should be performed with the least possible delay.

2. Every tumor of the larynx suspected to be malignant, of intrinsic origin, of limited extent and apparently within reach of free removal, justifies an exploratory thyrotomy in a suitable patient, in the absence of infiltration of the surrounding structures and of affection of the lymphatic glands.

The method of operating pursued by Butlin and Semon has been described in their published writings. It applies distinctly to cases in which the disease is absolutely confined to the interior of the larynx. Preliminary tracheotomy is done with the insertion of the tampon canula and its careful adjustment. The anterior part of the thyroid cartilage is laid bare with scalpel and raspatory, it is opened exactly in the median line, and the two sides of the larynx are held apart, preferably with two strands of strong silk inserted through the anterior parts of the lateral wings of the thyroid. After the latter has been split open, undue violence in holding the halves apart must be strictly avoided. At this stage it will generally be necessary to protect the parts from mucus and saliva by packing the lower part of the pharynx with a large septic sponge secured by a string and passed through the laryngeal wound upward. There are two recommendations upon which Semon lays special stress; 1, the surgeon should be provided with a forehead reflector and a good light, and as has already been suggested by the writer for deep operations in the pharynx, he should if possible have at hand a small two- to four-candle power electric lamp, to be used for the purpose of securing the best possible illumination of the interior of the larynx for the detection of every possible bit of diseased tissue; 2, before he begins the removal of the growth the whole side of the larynx to be operated on should have applied to it a 5 per cent. solution of cocain, for the purpose of contracting the capillaries on that side and preventing parenchymatous bleeding, which otherwise is sure to interfere with and greatly prolong the removal of the growth proper, while at the same time it may allow suspicious portions to remain behind. The importance of the two above mentioned measures is strongly insisted upon. The field of operation having been thus prepared, the diseased soft tissues are thoroughly removed to at least half an inch from the periphery of the growth, and if necessary the underlying cartilage is scraped or even removed, the base being firmly scraped with a sharp spoon. The use of the galvano-cautery will seldom be required. Every source of bleeding having been stopped, the whole interior of the wound is dusted with pulverized iodoform, or with iodoform and boric acid in equal parts, and the tampon canula is immediately removed. The whole of the wound is then covered with cyanid or iodoform gauze.

In cases where the more extensive resection of the thyroid or even extirpation of one-half of the larynx is contemplated, the parts of cartilage to be removed should be freed from their perichondrium and from the surrounding soft parts by means of an elevator. In other respects the operation is the same, only more extensive than mere thyrotomy with removal of soft parts. It is generally not necessary to prophylactically ligate the laryngeal arteries. Where the epiglottis or the aryteno-epiglottidean folds are diseased, the best means of access to them is sub-hyoidean pharyngotomy.

For after-treatment, both Wagner and Butlin immediately remove the tampon canula, and from that time use no tracheal canula whatever, and the wound having been dressed as above described the patient is not propped up in bed, but is placed horizontally on the side corresponding to the half of the larynx operated on with one small pillow under the head. Instead of plugging the wound with gauze as formerly, Mr. Butlin dusts it at least twice daily for the first few days with the antiseptic powder by means of a powder insufflator. The application can be made to the best advantage when the patient is swallowing, as during the act of deglutition the wound in the neck is separated sufficiently to admit the end of the powder-blower, so that the powder may be thrown directly against the raw surfaces, which should be thoroughly covered by it. The external covering of cyanid or iodoform gauze should be removed as often as wet by secretion. Although nutrient enemata may be required for the first few days, the experiment may be tried on the day of the operation or soon thereafter, of allowing the patient to attempt to drink a little water while leaning with the upper part of the body well over the edge of the bed. In case of any impediment to the closure of the larynx during this act, the water will run directly out of the wound and no harm result; should the experiment succeed milk may at once be taken in the same way, and the necessity for rectal feeding avoided. The external wound gradually closes by granulations, which may have to be stimulated by applications of nitrate of silver.

Turning now to the method of operation classified as number two, we find that a distinct advance has been made in the treatment of cases requiring complete extirpation. It was first proposed and practiced by Prof. J. Solis-Cohen of Philadelphia. The patient upon whom he originally employed it in 1892, is still living and well. In this operation, as in several similar to it, the larynx was completely removed and the severed end of the trachea brought to the external edges of the cervical incision and there retained, communication between the lungs and the pharynx being thus totally and absolutely cut off. The great advantages of this plan over the usual methods are:

1. The danger to life from inspiration pneumonia is greatly lessened, owing to the shutting off of the mouth from the trachea.

2. Swallowing is accomplished with great ease and as freely as under ordinary circumstances.

3. In at least three cases thus operated upon, the power of phonation has been acquired with a voice fully as satisfactory as that produced by any artificial appliance, and without either the inconvenience and discomfort of an artificial larynx or the danger to the adjacent parts from the irritation of its presence. The mechanism by which phonation is accomplished in these extraordinary cases has not been explained. Cohen's patient is able to make his voice distinctly heard from one end to the other of the great hall of the New York Academy of Medicine.

4. The comfort of the patient is greatly increased, and the disfigurement of the other operation and the wearing of the artificial larynx largely done away with. It is entirely probable that under certain conditions, this method will prove to be the most satisfactory for complete laryngectomy of any yet proposed, and it is to be hoped that it may be given a sufficient trial to prove whether or not the cases already reported have been but the result of a happy accident rather than the first illustrations of a definite rule.

As to the third variety of operation it has often been insisted that in order to insure success, malignant disease of the larynx must be treated as early in its history as possible, and at least before involvement of the neighboring glands has taken place. Unfortunately in the history of the past early operation has not always saved life, but on the other hand several eminently successful cases have been in patients who suffered from a tolerably extensive condition of disease. The management of cases of extensive laryngeal disease, therefore, becomes a matter not only of great importance but of lively interest, especially when it is remembered that perhaps a majority of patients are not seen by the specialist or surgeon until the disease has made considerable progress, and the time most favorable for operation has passed.

Several years ago operations were attempted upon such patients with only here and there an exception to the inevitably and immediately bad result. Subsequently they were generally left to their fate. Of late, under the influence of improved methods and increasing knowledge, a hope, a small hope indeed, but worthy of all encouragement, has been aroused by the excellent work of several men. Prominent among these may be mentioned Mr. Watson Cheyne of King's College Hospital, London, whose efforts in this direction are now attracting much attention, and who in his admirable Lettsonian Lectures (*Lancet*, February 15 and 22 and March 14, 1896,) upon "The Objects and Limits of Operations for Cancer," delivered before the Medical Society of London last February, says: "As compared with cancer in the breast, the disease in the throat is in some ways more favorable for cure; in other ways less so. Primary disease of the breast is by far the more favorable of the two, for there it is fully exposed to view, and there is plenty of room for its free removal without endangering important structures. In the mouth and throat, on the other hand, the disease is close to if not involving many important parts, the space in which one has to work is very limited, any considerable margin of healthy tissue can not be obtained, and the early spread of the cancer to muscle, tends to distribute it over a considerable area. In the throat, moreover, the disease is much less favorable for operation, because the septic elements comes into play, and thus instead of having to do with an operation in the breast where the mortality is practically nil, we have to face very considerable risk of death from septic disease. On the other hand, cancer of the mouth and throat is more favorable as regards the glandular deposits, for in the neck we have an extensive glandular area exposed to view which can be much more thoroughly dealt with than in the case of the breast. It is true that many surgeons look on the glandular trouble as a most serious part of the disease. With this I do not agree. In another respect cancer in the throat is more favorable than in the breast, namely, that in it metastatic deposits are infrequent."

As to the neighboring lymphatics, Cheyne believes that they should be removed as in cancer of the breast It is seldom that no enlarged lymphatic glands can be felt in these cases, and usually they are of considerable size. Whether they can be felt or not, the lymphatic area should be cleaned out. Unless the lymphatic enlargement is very extensive or adherent to a variety of structures in the neck, and not merely to the sheaths of the vessels the operation will be more thoroughly done and the patient will have a better chance of recovery and cure if enlarged glands are already present.

With regard to preliminary tracheotomy, Cheyne, agreeing with many other excellent authorities, does not believe in the insertion of the tube several days prior to the performance of the main operation. Personally I do not think his ground upon this question well taken, the objection being that in three or four days after the insertion of the tube there will be a collection of septic matter around it which may get into the trachea after the performance of the main operation. Such an accident could probably be avoided by extending the time between the two operations to ten days or more. It is desirable, however, that this question, namely, when preliminary tracheotomy should be performed, should receive more careful attention than has hitherto been accorded it, as it is without doubt an important factor in the patient's welfare.

These three varieties of operation just described may be said to finally represent the most recent additions to our present resources for the surgical relief of malignant disease of the larynx.

Turning now to the statistics of these and similar operations performed upon the larynx, we find according to a recent valuable article published by Schmiegelow of Copenhagen, in *Gouguenheim's Annales* for April, 1897, that during the past six years the mortality resulting from extirpation of the larynx has been materially diminished. Thus up to 1880, according to Holmer, the mortality was 42 per cent. Tauber reports a rate of 60 per cent., following total extirpation of the larynx between 1866 and 1890. Between 1880 and 1888 Schier found that the rate had fallen to 34 per cent. Since 1890, however, the reports are much more hopeful, for the same observer finds that the rate during that period has been reduced to 22 per cent. Schmiegelow, carrying the reports up to the present time, finds that the percentage of cures since 1890 has been 13.5 per cent., and of immediate mortality 18.7 per cent.

I earnestly wish that these flattering statements as to the improved statistics of this class of operations could be accepted as accurate and reliable. Undoubtedly in the cases of certain individual operators, who like Hahn, Butlin, Schmiegelow and some others, have faithfully and without reserve reported all of their cases good and bad alike, we are able to gain from their reports deductions of genuine value. It is both discreditable and unfortunate, however, that many operators have failed to publish their unsuccessful cases and have only reported such as have resulted well. This, I am sorry to say, has been particularly the case in our own country. Two years ago, the writer in the course of preparing an article upon this subject, wrote to the principal surgeons of the United States asking for a statement of their results. The answers were so incomplete and unsatisfactory that he abandoned the attempt. One surgeon who had operated four times with three speedy deaths, entirely omitted to mention his failures, while the successful case was reported in full.

Time and again the operation has been attempted under unfavorable conditions and by unskilled but venturesome men, whose rashness has quickly robbed the patient of what little hope belonged to him, and who having nothing creditable to report, have avoided publicity. If the whole story were to be told it is probable that the statistics in this country would be discouragingly bad.

It can not be insisted upon too urgently that carcinomatous cases requiring laryngectomy are desperate at the best, both as to immediate and ultimate results, and that with our present limited knowledge of the subject, no amount of caution, however great, will avail in preventing a high percentage of failures. With the sources of danger so numerous, constant and subtle, it is impossible that too great foresight or experience be brought to bear against them, or that the urgency of this demand be over-stated. Doubtless the best preparation for the work on the part of the surgeon would be a thorough knowledge of operations upon the tongue, neck and lower jaw in general. In the after-care of the patient also it is not by any means enough that the watchers should be ordinarily qualified in the care of severe surgical cases. Nothing short of special fitness in the department of this particular class of cases will yield the best results.

Next, such accidents as the entrance of septic or foreign matters into the air passages must be carefully guarded against. The use of the esophageal tube when entrusted to inexperienced hands has often been the cause of disaster. This part of the management as proved by the records of failure, requires most careful handling. Another dangerous and preventable accident is the poisoning of the patient by the antiseptic dressings, among which iodoform has been the principal offender. The substitution for it of a mixture of equal parts of powdered iodoform and boric acid, or of the compound tincture of benzoin has been attended with success.

In reviewing the recent progress in the treatment of malignant disease of the larynx, and in studying the manner in which these advances have been made, it must be apparent that nearly all have been the result of long and close study of the subject by accomplished surgeons, whose opportunities for clinical study have been unusually great. The time has long passed when an unsuccessful attempt at laryngectomy by one not fitted for the work can bring anything but reproach to the operator and discredit to the operation.

I am strongly of the opinion that, for a time at least, both the welfare of the patients operated upon and the interests of science demand that the indiscriminate performance of capital operations upon the larynx should cease. In most great centers there are individual surgeons or groups of operators who are especially well fitted both by personal qualifications and hospital facilities for the successful performance of this work, as has been proved in many cases by the records which they have already made. Let such men surround themselves with the proper assistants, let them systematize their efforts and use all the diligence in the perfection of appliances and methods and in the study of the cases under them, and keep careful and accurate record of everything pertaining to the history of their work. Then resign to them temporarily the care of as many cases of laryngeal cancer as possible. When a sufficient amount of material has been collected, we shall learn whether the radical extirpation of laryngeal epithelioma is unjustifiable, or whether, as we have the best reasons for hoping, it is likely to establish for us a reliable means of cure.

Finally, with the best results obtainable, it should not be forgotten that in this disease surgery is, and probably always will be, a forlorn hope, and that until we have discovered some better method of dealing with it, the results of operation, even under the best conditions, will fall far short of a perfect means of cure.

DISCUSSION.

Dr. Cohen—In my opinion much of the success of the case depends upon the attention given to the patient after operation. Operation is of course very important, but the best operation will fail if the patient does not receive the proper after-treatment. I am certain that a number of the cases I have seen could have been saved with proper care. The patient requires not only to have the surgeon within immediate call, but also the laryngologist. The great mistake is made when the laryngologist abandons the case to the surgeon, for the surgeon is not always familiar with the emergencies that may occur in such cases. Even if the laryngologist is not able to perform the operation, he should be in constant attendance with the surgeon until the patient is out of danger.

Dr. Mackenzie—The surgical treatment of laryngeal cancer has resulted in failure in the past because the methods employed have not been sufficiently radical. Thyrotomy, partial and complete extirpation of the larynx have fallen far short of success simply because they have not completely removed the disease. There is but one rational treatment for cancer of the larynx. Early total extirpation of the organ together with its neighboring lymphatics and glands whether the latter be apparently diseased or not, is the only possible safeguard against local recurrence and metastasis. By no other method can we give the patient a reasonable assurance of a permanent lease of life.

The time will surely come when the conscientious surgeon will consider that he has fallen far short of his duty to his patient and himself if he does not in the treatment of cancer of the larynx, no matter how circumscribed the growth may be, remove not only the entire organ, but also the neighboring lymphatic area. Then and not until then will we have more favorable statistics and prognosis in cancer of the larynx. Then, and not until then, will the medical historian chronicle a *real* advance in the management of this terrible disease.

Dr. Myles—I think the high death-rate is because the general surgeon does not know enough about the after-treatment of these cases. We have our laws as to laryngeal trouble and things germane thereto, but we should have the assistance of the general surgeon and let him do the cutting. In a case which Dr. Mackenzie and Dr. Halsted had, after the larynx was extirpated there was no recurrence at all. They decided to take out the whole larynx and found by the microscope, cancer on the opposite side which had not been evident before the operation.

Itching of Urticaria.—Distilled water 450 parts; cherry-laurel water, 50 parts; chloral hydrate, 5 parts; cocain hydrochlorate, 3 parts.—*La Provence Médicale.*

SOME DEFECTS OF SPEECH; THEIR CAUSE AND TREATMENT, WITH EXHIBITION OF CASES.

Presented to the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

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The first case is one of defective speech due to a cleft palate. The boy, J. C., was born in Ireland eleven years ago with a cleft running back through the lip, alveolar arch, hard palate and soft palate. The hare-lip was beautifully closed by Dr. Hamilton of Dublin, when the child was 7 months old. He always had great difficulty in swallowing and his speech was entirely unintelligible. When he was 9 years of age Dr. John B. Roberts of this city did a very successful operation for closing the palatal cleft. This made the boy comfortable in every way, but it did not improve his speech to any appreciable extent. Even had he been given a perfect palate and perfect lips his speech would still have been defective, because for nine years the other organs of speech had been trying to adapt themselves to very imperfect conditions, and in so doing had developed abnormally and formed certain faulty habits of action. The cleft palate operation therefore should be done as early in life as possible, before these habits of faulty speech are formed. Even then we do not obtain good speech because under the most favorable circumstances and with the most skilful operation we do not secure a palate of suitable dimensions and normal functional activity. Nature as a rule has failed to give us sufficient tissue here and some of it must be sacrificed in our efforts to unite the parts, and the muscular control of the palate after the operation is always very deficient.

The velum palati, that portion of the palate which is so essential to good speech, is too short. There is not enough material to make a veil sufficient to close what I have called the palato-pharyngeal chink, and the result is that the sounding breath which should be directed through the oral cavity in the articulation of many sounds, is allowed to pass up through the nasal cavities instead, and this deflection makes the utterance of certain consonant sounds quite impossible.

Training will improve this condition to some extent but not very much unless at the same time we are able to increase the effectiveness of the soft palate and uvula. The palate is too short and tense. It is stretched across midway between the tongue and pharyngeal wall and held down by the palato-glossi muscles, which are also too short. In addition to this the pillars of the palate are usually bound together by old tonsillar adhesions, which assist in preventing the normal action of the palate. The uvula is either absent altogether or very deficient in size and useless so far as its natural functions are concerned. The indications here have been to secure greater freedom in the movements of the palate and for this purpose I have separated the adhesions between the pillars and divided some of the fibers of the palato-glossi muscles, and then by frequent stretching of the parts and massage with the finger placed in the mouth, I have been able to give him a more useful palate and his speech is already quite intelligible, although we have only nicely begun his training and these other methods for the improvement of speech. My next step will probably be to divide some of the fibers of the palato-pharyngei muscles. His speech is far better now, I think, than that which we could have secured with an artificial obturator and it is always a pity I think to put an obturator in the mouth of a boy of this age.

The next case is the only one of its kind so far as I know. This young man is 15 years of age, born in this city of American parentage, and is next to the youngest of five children, the other four being strong and healthy, although two of them are said to have had some slight derangement of speech in childhood from which they recovered without special treatment. The family physician informs me that the mother had frequent uterine hemorrhages during the time she was carrying this child, and after delivery both mother and child were very weak and anemic. The child's heart action was feeble and the foramen ovale was late in closing. He was what is known as a blue baby and had occasional spells of what was called suspended breathing. At the age of 1 year he had a severe attack of broncho-pneumonia, from which he recovered slowly, and he was extremely delicate until the age of 7 years, since which time he has been in fairly good health. His spech developed very slowly and imperfectly and he was brought to my clinic about the first of the present year. He could talk glibly, but not a single word was at all intelligible. I asked him his name and address and he said "Tháhti Thóu, púrti thah tháti páhthi," meaning Alfred Lawrence, 3918 Parrish. I asked him to say the days of the week and he said "Túrdi, Tháhdi, Túdi, Thádi, Bódi, Báhdi, Táhdidā."

We found that he had been attending school regularly, where he had easily kept abreast of his mates in his studies and shown himself to be rather above the average in intelligence. This is very unusual. In fact I know of no other case with such a history. Even though the brain be in perfect physical condition and the defective speech be due entirely to imperfections in the peripheral organs, cerebral action is usually very much impaired.

In a case which I reported two years ago the mental growth was checked to such an extent as to actually suggest idiocy, but just as soon as we opened up the avenues for oral expression his mentality increased with most wonderful rapidity.

Usually defective speech is a great hindrance to mental development and this is especially true as the patient gradually merges into adult life. It is then that he begins to feel the need of effective speech, and unless he can exchange with his fellows the products of the mind these products will soon cease to materialize. This boy has gotten along very well up to this point. He is almost ready for the high school, but I believe he had about reached his limit of normal mental development and the next few years would have witnessed a retrograde action. Even now he has a kind of hang-dog expression as if he were sorry that he is living, but that is not so marked as it was four months ago and it would have increased enormously in the next few years, for his defect was beginning to weigh heavily upon his mind.

Now, what was the cause of this defective speech? Peripherally there were no structural irregularities in the organs except some bad incisor teeth and a slight enlargement of the faucial tonsils with some adhesions between the pillars, which I removed, although they could have but little bearing upon the trouble.

There was really nothing in his mental or physical condition to account for his defect and therefore I think we must conclude that the cause probably began in intra-uterine life and existed all through the formative speech period up until about the seventh year. Before birth the blood which should have gone to nourish the fetus passed off in frequent hemorrhages, and for several years after birth the child's own circulatory apparatus was entirely inadequate, and as a result of this faulty circulation and anemic condition all the mental and physical processes were greatly retarded and speech being one of the most complicated of these processes suffered most and improved least with his improvement in general health. A careful study and analysis of the action of the peripheral organs during his attempts at speech revealed the fact that only the simplest movements and combinations of these organs were made. The anterior stop positions alone were used, that is, the one between the lips and the one between the tip of the tongue and the teeth, or what remained of three very bad teeth, in front. The consonant sounds which he used were, of the labials p, b, m, of the linguo-dentals, th as in thou, and of the linguo-palatals t, d, n and occasionally l and r in the middle of a word. The voiced th was his favorite sound for the beginning of words, and the voiceless th (as in thin) he did not use at all, but changed it to p. For instance, he would say "pirty" for thirty.

I will now describe some of our methods of treatment and their results. Our task was not so much to develop the speech center I think, but rather to train the motor track and the various peripheral muscles and organs of speech into right action.

The center for word concepts was intact, as was the motor track supplying the muscles of the arm for writing; for he did his thinking in the words that he uses now and he wrote a good hand and spelled very well indeed.

We began with exercises to develop the various muscles of the lips, the tongue and the palate. He could not even open his mouth properly and it was some days before we could get a satisfactory view of his tongue and palate. In trying to open his mouth the orbicularis oris would close sphincter-like and he could not relax it, and I am convinced that he never knew what it was to smile. Various exercises were given him to correct these faulty muscular actions and he was carefully shown day after day how to make the elementary sounds of the language, where to place the tongue, how to shape the lips, etc., etc., much after the manner that we teach deaf mutes to speak, and we have found that there are no sounds that he can not master, and I may say that he has not mastered, although he needs further practice to acquire greater facility of speech.

In conjunction with this case I present a somewhat similar one, although they differ in some important points. This boy comes from Virginia and is 10 years old. His trouble is simply that of arrested speech development, such as we very commonly meet with in children. His speech not only did not improve but it was actually deteriorating. There is the history of a fall at the age of 7 months, in which he received a severe injury to the nose, although there appear to be no special external evidences of such injury. There is no intra-nasal pressure and there are no oral or pharyngeal lesions of any kind to account for the trouble. He has had measles, whooping cough and malaria of a very severe type, and he had convulsions when teething. His father and mother are second cousins and still living. His grandfathers were first cousins and both died at the age of 45 years. There was consumption in both families and a history of various kinds of nervous affections and backward speech in many of the children. The mother of this child had defective speech and her brother had some form of paralysis and used to stammer at times, and died at the age of 38.

And so this boy springs from a race of defectives, and as is the history of so many of these cases, the tendency toward defective speech seems to be inherited. His defect may be characterized as the mutilation of words with what Mr. S. S. Buckman has called decapitation and decaudation. He cuts off nearly all the initial consonants. For moon he says "oon," for Sunday he says "unday," for cat he says "at." And there is also some decaudation or the cutting off of the final consonant; as for chair he says "a," for three he says "e," for four he says "o."

The treatment of these two cases has been along the lines of physiologic principles. The various organs of speech, viz., the lips, tongue and palate, have been trained to take the proper positions for the articulation of each sound, and as these positions are constantly changing and interchanging, this is no easy task; and yet the results in these cases have been immediate and most satisfactory.

The speech of neither of these boys was at all intelligible and that of the first one did not even resemble or approach the normal, while the speech of the second was mutilated, decapitated and decaudated.

The first boy has been under treatment about four months and the younger boy came to my clinic April 6. The first boy can now read and speak very well and can articulate very clearly any word with which he is at all familiar. The second boy can enunciate perfectly a long list of words which he has learned. These are both dispensary cases and have not received the regular and systematic treatment which they might otherwise have had. I would say further in reference to the treatment of all these cases that careful attention has been given to the proper methods of breathing, and they all breathe alike and in a certain definite manner. This is most important in the treatment of stammering.

NOTE.—In addition to the above three cases, Dr. Makuen exhibited three cases of stammering, in two of which the defect had been entirely eradicated and the third was in process of treatment. Methods of breathing, etc., were freely demonstrated.

DISCUSSION.

DR. VANSANT—It is perhaps proper to exclude the psychic causes of speech and consider for a moment the effect on speech of the various abnormalities of the throat and nose. The recognition of such local conditions and their removal in early life seems very important. We are familiar with the thick speech in cases of nasal obstruction, and I have noticed a want of co-ordination between thought and speech in patients suffering from these local lesions. A man with hypertrophy and enlarged glands about the throat may think one word and speak another. That being the case, a certain defect of speech naturally arises. He becomes embarrassed, seeks for the word he is thinking of, and stammers. We know how young children, who want some object whose name is unfamiliar, will stammer before bringing out the word. Elocution is simply for the purpose of voice culture. I think it is a mistake to send a stammerer to an elocutionist before a careful examination of the nose and throat has been made. Remove the abnormal conditions and afterward employ proper teaching to improve the speech. Many methods are pursued by teachers for the cure of stammering. Dr. Makuen's brings under more perfect control the various muscles used in the production of voice.

Dr. Scheppegrell—I will ask Dr. Makuen whether he ever heard of the method of a man who traveled over the country a few years ago and made a great deal of money. After insuring his fee, he gave only the direction, "lower your voice."? For instance, if the patient used his throat register, he was told to use his chest register. The result really seemed to be to stop the stammering, but I do not know anything as to the permanent result of the treatment.

Dr. Delavan—In no subject has there been so much quackery and deception as in the cure of stammering. For a man to take up the matter in a scientific, broad-minded and humane way, as Dr. Makuen has done, is quite rare. The mass of literature on the subject does not give a single practical idea. Attention should be given first to the proper management of the breath and the organs of articulation, the proper development of the physical state of the patient, and the careful study of the throat and the removal of any local pathologic defects, adenoid tissue, etc.

Dr. Richards—In the manufacturing community in which I live I find many speech defects among the children. The mothers work in the mills too long previous to the birth of the children and the children themselves are put into the mills very young. These defects are often associated with deficient intelligence, but I have one patient who aside from this trouble is a fairly bright child. The boy can not protrude his tongue and can pronounce no word except his own name, "Elmer," which he can speak intelligibly. At the Massachusetts General Hospital the trouble was regarded as central in origin. There is certainly some hypoglossal paralysis. I would like to know what Dr. Makuen would suggest in a case of this kind.

Dr. Cohen—In the training of the muscles of the palate the great difficulty is that the soft palate can not occlude the pharynx, and thus it is very rare to see much improvement in speech after operation. For this reason many advisers prefer some artificial appliance. If you ask a patient to choose between an imperfect throat and imperfect speech, he will usually want his speech restored at almost any cost. It is a very great achievement to get as good results as shown in the first case. The great difficulty in operation is that we have to shorten an already short palate. In 1874 (see Transactions American Medical Association, 1874) I devised an operation for cleft palate, in a girl of 15. I simply split the edges on each side and spread them out, uniting the two halves. This is the only case where I have seen good speech after operation. I have never performed an operation for cleft palate since, but have invariably advised obturators, and with excellent results. A surgeon once brought me a case on which he had operated for cleft palate, with good results, and he was about to take away the enlarged tonsils. I advised against this procedure, because these tonsils occluded the pharynx and aided speech and their removal would have reproduced the imperfections in speech.

Dr. Woolen—I would ask whether there is a method of securing adhesion of the two sides of the uvula. In a case I have, strong adhesions of the soft palate were secured, but a bifid uvula remained. Speech has been wonderfully improved, which I think is largely due to the elocutionist to whom I sent the patient after operation, but there are still certain defects in her speech.

Dr. Cohen—You can get union by putting a drop of nitric acid in the apex of the cleft, and when that spot has united, putting on another drop just below it, and so on.

Dr. Makuen—The average elocutionist does not know what to do with these cases. He has no idea of the proper method of breathing, which is the first thing that has to be taught. I have some assistants in my clinic who understand this subject very well. My elocution teacher in school taught me a method which was entirely wrong. Elocutionists are mainly skilled in teaching the refinements of speech to those who can already speak fairly well. The defective must be shown how to place and use the tongue, lips and palate and the respiratory and buccal muscles, and must be drilled into it. In regard to the various tricks for the cure of stammering, I am sure that I have heard of 500 of them. Few of those who treat stammering will tell you the method used. Dr. Richards mentioned a case of his, a boy who can not protrude his tongue properly. The case I have shown you from Wilmington was one of that kind. The cutting of the anterior fibers of the genio-hyo-glossus muscle relieved him. The operation seems to loosen up the tongue so that the patient can be taught to speak. With reference to the mental condition in these cases, Dr. Daniel G. Brinton says that the genio-hyo-glossus muscle is supposed to have some special connection with the brain, and those who have defective tongue muscles are likely to have a defective brain. I had a case which had been given up as idiotic. I did this operation and the boy is now one of the brightest in his school. It is better to operate under general anesthesia. In stammerers quite a large percentage have bifid uvula.

CHRONIC STENOSIS OF THE LARYNX WITH FIVE ILLUSTRATIVE CASES.

Presented to the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, Pa., June 1-4, 1897.

BY WILLIAM S. JONES, M.D.
CLINICAL PROFESSOR OF LARYNGOLOGY IN THE JEFFERSON MEDICAL COLLEGE HOSPITAL,
CAMDEN, N. J.

I reported a case of prolapse of the laryngeal ventricle in the *Medical News*, Feb. 2, 1895, which presented at intervals marked symptoms of stenosis, the dyspnea at such times being very severe. Since that time, a number of cases of chronic stenosis, due to different causes, have come under my care, and I hope that a short history of some of these may prove both interesting and instructive.

Any cause acting either from within or from without which lessens the lumen of the larynx, will produce the symptoms of stricture, and so long as the cause is active there will be actual constriction. The condition may be acute or chronic, according to the length of time the process has been present and active, but the ultimate symptoms of the two varieties are the same, and the gravity of the symptoms is always dependent upon the severity of the lesion and the extent to which function is interfered with.

The symptomatology is characteristic. Dyspnea is always the most urgent symptom but there may also be present dysphonia, dysphagia, pain, cyanosis from improper aeration of the blood, forced respiration bringing into action the accessory respiratory muscles, anxiety of countenance, engorgement of the venous system and increased breath-sounds in the larynx. In the chronic cases, probably the most frequent initial symptom is dysphonia or hoarseness, which is sooner or later followed by the other characteristic signs.

Case 1.—R. S., aged 35 years, while attending a ball game three years ago, cheered very loudly the success of his favorites. He at once experienced a hoarseness which, however, lasted but a few minutes, and no further attention was given the condition. Two weeks later, hoarseness again developed and gradually increased in severity. After this condition had progressed several weeks, he began to have interference with the breathing which was at times very marked. Four months after the first onset I saw him and found a large mass, of light red color, situated just above the left vocal band and resting upon it. The history of the violent straining of the larynx at the ball game, the immediate hoarseness, probably due to a local congestion, the gradual onset of dysphonia and dyspnea were, in part, characteristic of a prolapsed ventricle, and the appearance of the mass confirmed the diagnosis.

We would state that the diagnosis is by no means easy, and but a very few cases have been reported. The color and smooth surface excluded angioma and papilloma, and the sessile attachment was against myxoma. Its position, shape, color and the absence of surrounding inflammation or infiltration excluded a malignant or tuberculous lesion.

Replacement of the prolapse was performed several times but it returned as soon as pressure was removed, so I resorted to the galvano-cautery to accomplish complete removal. The knife used had a shield to protect the ventricular band. At each visit several applications were made with the knife at a dull-red heat, and after the application of a 20 per cent. solution of cocain. The parts healed nicely after complete removal was effected and there are now no appreciable symptoms indicative of any trouble having existed in his larynx. The parts are normal in appearance.

While this case might not be considered one of true stenosis because of the absence of new growth or constricting tissue, it seems to be proper to classify it as such because of the presence of the characteristic symptoms of that condition.

Case 2.—Mr. H. H. A., aged 52 years. The patient was first seen in September, 1896, and the following facts were elicited: The family history and the patient's early record are very good, there being no tuberculous or other constitutional disease present. He has always had good health, the only sickness having been an indefinite venereal trouble thirty years ago from which, however, he quickly recovered. During all these years, he has been engaged in hard labor and exposed to all kinds of weather. He refers the beginning of his present trouble to a bad cold contracted in August, 1895. Dyspnea began in September, 1896, and grew steadily worse until October 12. I first saw him early in September. At that time he had slight hoarseness, and examination showed a small mass, the color of the normal larynx, beneath the left vocal cord. He was placed upon specific treatment tentatively. He grew steadily worse. Marked dyspnea developed and almost complete aphonia, and all the usual symptoms of advanced stenosis. October 12, examination of the larynx showed marked thickening of the left ventricular band and bulging of the left cord, caused apparently by a swelling back of it. The swelling was so great that breathing was almost impossible. The right side was normal. Tracheotomy was performed at once.

The operation was done under eucain anesthesia and the third, fourth and fifth rings cut. Three days after the operation he contracted an acute bronchitis, which however subsided in a few weeks and he left the hospital at the end of a month. One month later he began to breathe through the mouth, also to speak, and in two months his voice was perfectly normal and his breathing free. He still wears his tube but keeps it plugged all the time.

The cause of the stenosis in this case was obscure. There was no ulceration and no pulmonary involvement, which, together with his recovery without medication, exclude tubercular laryngitis, and syphilis was excluded by the week's trial treatment. The probable cause was a localized chondritis which subsided after the irritation by breathing, coughing and talking was removed. This also seems probable from the fact that at present the larynx is normal in every respect.

Case 3.—W. W., aged 42 years. His family history is negative excepting that one brother died at the age of 21 of acute miliary tuberculosis. His personal history reveals that he had three chancroids (so-called) in 1872, which were about three months in healing. He, however, never saw any secondary symptoms of syphilis, but as he is colored they may have been present and unnoticed. In 1891, he was kicked by a horse in the right side of the face. The malar and superior maxillary bones were fractured, and a portion of the latter was removed by the surgeon in attendance. About three weeks after this injury, according to his statement, a sore throat developed and has continued more or less ever since. In 1893, an abscess formed in the left side of his neck and was opened. This probably came from broken down cervical glands, as a number of them in that region are still enlarged. About the middle of July, 1896, he began to have dyspnea and difficulty in swallowing solid foods, with occasional attacks of vomiting. These symptoms gradually increased until the middle of October when I saw him. For a week previous to this time dyspnea was very marked, and he had some pain in both tonsillar regions.

October 25, I performed tracheotomy under eucain anesthesia. He made a slow recovery from the operation, having much inflammatory reaction about the wound. He was given 1.3 grams of potassium iodid three times a day immediately after the operation, and this has been kept up until the present time. The condition of the larynx remained unchanged for four months in spite of the administration of the iodid, but then the obstruction began to disappear and at present (May 1) his larynx is almost normal and his voice is completely restored.

This case was undoubtedly one of syphilis of the larynx and the favorable result is due in part to the early operation, removing a fertile source of irritation by turning the current of air aside and preventing coughing, and in part to the steady use of the iodid before the new tissue was thoroughly organized, as were organization complete, a contracting stricture would undoubtedly have resulted.

Case 4.—P. B., aged 53 years. His family history was very good, also his personal history, he having had no sickness except the grip three years ago. His present trouble began about Sept. 1, 1896, with slight dyspnea which gradually increased, but he continued his work as a laborer until October 8. As his difficulty of breathing became more severe he developed a cough, but had no pain or difficulty in swallowing. He lost flesh rapidly during this time. He first came to the clinic October 27 and an examination then revealed a growth involving the right side of the larynx and pushing the vocal band to and beyond the middle line. The diagnosis of carcinoma was made and immediate tracheotomy advised, with a probable resort to laryngectomy later. The first operation was done the next day under eucain anesthesia. He recovered quickly from the operation but continued to lose flesh. The laryngeal swelling subsided somewhat after the operation but the growth increased steadily in size. He refused laryngectomy and went to his home in a neighboring city, where he is still living, but in the last stages of malignant disease.

Case 5.—W. C., aged 30 years, a laborer. Nov. 12, 1896, in a fit of despondency, he attempted suicide by making a large cut in his throat with a penknife. He penetrated the trachea about the second or third ring, twisted the blade about and cut up and down for an inch or more. He was taken to a hospital, where the wound was dressed but not closed, nor was there a tube inserted. One week later, it was noticed that he could not breathe through the mouth when the wound was closed by pressure. It was deemed necessary to introduce a tracheotomy tube, an anesthetic was given him, a tube inserted and the wound stitched around it. Two weeks later, the surgeon attempted to pass a tube through the trachea and larynx from the tracheal wound but did not succeed, the part being shut off. He was then sent home to allow the wound to heal before further operative interference was instituted. Nothing further, however, was done and he was sent to me. The condition of his larynx at present is as follows: The right side is drawn slightly downward, the right vocal band is in the median line and immovable, being fixed by scar tissue beneath it; the left side is normal in situation, the cord is freely movable and can be brought to the middle line perfectly. The entire left side is free for three-fourths of an inch below the vocal band, while the right side has a band of cicatricial tissue just below the cord, which extends downward for three-fourths of an inch and then spreads out to the other sides, completely occluding the trachea. The surface of this membrane is smooth and the lowest point is near the center. From below, the trachea is entirely closed above the tube and the cicatrix is about one-half an inch in thickness.

I have made no attempt at opening the trachea but think it can be done comparatively easily from above. The method of procedure will be to make an incision through the scar tissue with a long knife and enlarge this opening by graduated bougies until the entire lumen is established, and then keep it open by a tube attached to the one now in the tracheal wound until the surrounding parts are healed. He might even always wear an intratracheal tube, as it is too low to interfere with his voice, yet will insure an open passage for air.

201 Broadway.

SOCIETY PROCEEDINGS.

New York Academy of Medicine—Section in Orthopedic Surgery.

Meeting of December 17, 1897.

Dr. A. M. Phelps read a paper entitled:

A CONSIDERATION OF SOME OF THE PATHOLOGIC AND MECHANICAL PROBLEMS OF HIP DISEASE.

He presented the view that nature attempted to repair the lesion producing hip disease by inflammatory action which was a normal process of repair until the inoculation of germ life which marked the beginning of disease in the area of inflammation. The absence of inoculation gave rise to the ephemeral cases of hip disease which rapidly recovered without deformity or disabilty, but inoculation gave rise to the ordinary type of the disease. If the phagocytes were weakened by the strumous condition of the patient, they failed to destroy the germs. If, however, germ life was destroyed, repair went on and the parts were restored to their normal condition. Cavities and foci produced in the course of hip disease by the slow growth of the bacilli of tuberculosis might be inoculated by the rapidly growing pyogenic cocci when a hot and possibly painful abscess appeared and called for the knife and drainage. The adduction, flexion and inward rotation attending the third stage found a mechanical explanation in the fact that when the limb passed twenty-five degrees of flexion the adductors became internal rotators, the external rotators became abductors and the tensor vaginae femoris became a powerful inward rotator. In the application of mechanical treatment it should be remembered that the powerful groups of muscles acting upon the thigh did not act on an axis with the shaft but nearly on a line parallel with the axis of the neck of the femur. Lateral traction, therefore, should be made in the line of the axis of the femoral neck and not of the shaft.

Dr. G. R. Elliott said that in hip disease we had a depraved process. The whole system was at a low ebb that tended to favor the development of the disease. He thought that this condition of inactivity required the use of some form of apparatus which did not, as all the instruments now in use did, subject every part of the child's body to great expense for the sake of the hip. The ideal splint of the future would not lock up so much of the body by apparatus but would fix only the diseased joint.

Dr. R. H. Sayre advocated the use of traction to fix the joint, give it physiologic rest and relieve the pressure to which the diseased bone was subjected. He thought that it was difficult to apply lateral traction by a splint, but in bed, lateral traction was easily applied and added to the patient's comfort. In children, however, in whom the neck was nearer in line with the shaft of the femur than in the adult, he believed that longitudinal traction was sufficient. He thought it well to apply massage to overcome the muscular atrophy of disease, but it took a great deal of care to limit the application to the sound part and not interfere with the inflamed joint.

Dr. T. H. Manley held that all pus accumulations about a joint should be evacuated early and thoroughly. He asked Dr. Phelps's opinion of the intra-articular injection of solutions of iodoform.

Dr. Phelps said that filling a joint with an insoluble compound did more harm than good. If he found a joint in which there was fluid, he evacuated it.

Dr. A. B. Judson said that the destruction of the head and acetabulum was often cited as an evidence of the bad effects of muscular contraction and of the necessity of making traction. He thought that this destruction was rather an evidence of the bad effects of the pressure made by the weight of the body, as patients with hip disease, if unmolested, were in all except the most advanced stages on their feet as much as well children. He believed that traction was the best method of promoting fixation and in painful stages it was indispensible, but that removing the weight of the body from the joint was also an indispensible part of the treatment and useful through far longer periods than traction.

Dr. T. H. Myers had made a careful study of the ephemeral cases and believed that the lesion, of whatever nature it might be, was in the bone itself. He would make a distinction between these cases and rheumatic, gonorrheal or other affections of the joint cavity and ligaments. He could not recall any acute case of hip disease which had not been relieved by longitudinal traction alone.

Dr. R. Whitman said that the breaking down of bone appeared to be the effect of a destructive process, aggravated by the friction of the diseased surfaces upon one another, by the weight and strain of use in the attitudes of deformity and by the muscular spasm which forced the diseased parts together. The intensity of the spasm was in inverse proportion to the fixation and rest that could be assured. When the patient was recumbent the most important means of fixing the joint was traction. The ambulatory brace should remove the weight of the body from the weakened part, but it was so ineffective in fixation that its use should be combined with splinting of the joint. He had always insisted that the hip should be slightly abducted.

Dr. Phelps said that abduction should be avoided. It was one of the difficult conditions to correct in the first and second stages.

Dr. Judson said that in recovery with anchylosis abduction was desirable. It gave a factitious length to a limb which was probably really shortened, and saved the use of a high sole or reduced its height.

Dr. Sayre thought that the limb should be in as nearly normal position as possible, neither abducted nor adducted.

Dr. H. L. Taylor thought that about five degrees of abduction would compensate for some of the shortening and make the limb more useful.

Dr. Phelps said that anchylosis was due to the severity of the inflammation, the character of the disease, the destruction of bone and contraction of cicatricial tissue about the joint. It was prevented by the use of an apparatus which seized the pelvis and fixed the joint from the commencement of the treatment until the patient was cured. The joint being thus held at perfect rest, nature went on in her effort to cure, uninterrupted by the trauma of motion. The splint was not used to overcome deformity, but merely to hold the limb in a perfectly straight position after the deformity was corrected by bed treatment.

Meeting of January 21, 1898.

CONGENITAL ABSENCE OF PECTORAL MUSCLE.

Dr. Taylor presented a patient who had been brought to him because of asymmetry of the upper part of the chest in front. The patient was a boy six weeks old. There was normal fulness of the right side, while the left side where the pectoralis major should have been was much depressed. This was the fifth child of the mother, the others being healthy. Labor was normal. The child moved both arms equally well.

Dr. Whitman presented a boy 16 years old with a similar condition. When five years old he had pigeon-breast. On account of round shoulders and projecting scapulæ he had been brought to Dr. Whitman, who had found a defect of the right pectoralis major due, apparently, to congenital malformation from which the boy had suffered but little inconvenience although he was left-handed. The muscular deficiency had never been recognized. The clavicular part of the muscle was normal, but the sternal part was represented simply by a fold of fibrous tissue which could be brought into prominence by certain motions of the arm. He had considered the possibility of poliomyelitis as a cause, but after seeing Dr. Taylor's patient, he thought the trouble was due to congenital malformation. He had seen a somewhat similar case in which absence of the right pectoral muscle had been accompanied by defective ribs, slight lateral curvature and webbed fingers.

Dr. Myers had the day before seen a patient affected with wry-neck from general shortening of the muscles of the right side. There was also on both sides a very marked depression between the inner border of the deltoid and outer border of the pectoralis major, apparently due to absence or defect of the clavicular part of the large pectoral muscle.

Dr. Sayre said that in a boy who had been brought to him for pigeon-breast he had found the scapulæ very prominent and an almost complete absence of the right pectoralis major. The disability was not serious. He had referred the condition to an attack of poliomyelitis at the age of three, of which he had obtained what seemed to be a creditable history. The case might have been, however, an instance of congenital defect of the muscle.

Dr. Elliott did not think that it was possible to exclude poliomyelitis in either of the patients shown. He had seen patients in whom a muscular defect in other parts of the body, at first thought to be congenital, had been found to be the result of poliomyelitis. He thought cases were not uncommon in which the effects of the disease were limited to a single muscle or even to a part of a muscle.

Dr. Taylor said that in the case of the baby it would be necessary to assume that the disease had been *in utero* as the condition of the muscle had been present from birth and the atrophy was so complete that it suggested the absence of development rather than paralysis. If there had been paralysis it must have been at the very beginning of the development of the muscle since paralyzed muscles retained their fulness for a considerable time.

DEFORMITIES FOLLOWING TYPHOID FEVER.

Dr. W. R. Townsend presented a male 19 years of age who had complained of spinal pain and stiffness since recovery from typhoid fever last February. The vertebral column was very rigid with a slight curve toward the right in the lower dorsal region and a posterior curve of the lower dorsal and the entire lumbar rigion. There were also a number of swellings distinctly connected with the bone in different parts of the body resembling cold abscesses of tubercular subjects and syphilitic nodes. They were not very soft and there was no fluctuation. The general health had been poor since the fever. Parsons of Johns Hopkins University, had described such swellings as appearing several months after typhoid fever. He had found in them the typhoid bacillus, the staphylococcus and the bacillus coli communis and had advocated total extirpation of these foci.

Dr. Sayre thought the boy might be suffering from hereditary syphilis which had first made its appearance when his health was broken down by the attack of typhoid fever. If local treatment was necessary the foci might be incised and scraped and packed from the bottom. As the epiphysis is involved in several instances enucleation would endanger the usefulness of the joints. He called attention to the girdle-mark, which is a pathognomonic sign of disease of the spine and advised treatment as of an ordinary case of tuberculous disease of the spine.

Dr. V. P. Gibney advised that a trial of antisyphilitic treatment be followed by general constitutional treatment, the administration of cod-liver oil, etc. He could see no advantage likely to follow cutting out the foci. Spinal rigidity after typhoid fever was due to a mild periostitis about the points of exit of the nerves. He thought forcible correction with anesthesia would be excellent treatment in this case. He had seen a number of typhoid hips. One of them was under treatment by repeated forcible motion under anesthesia followed by massage.

Dr. Whitman thought that the spinal deformity was the most important feature of the case and that it required immediate correction. He said that the girdle-wrinkle was not caused by muscular spasm but was simply a fold in the abdominal wall answering to the projection backward which had taken the place of the normal lumbar lordosis.

Dr. Sayre said that he had noticed the girdle-wrinkle in many cases. It would be higher or lower according to the location of the disease. It was due to muscular spasm which accompanied any muscle subject to irritation and joint inflammation. It was diagnostic of Pott's disease and was present even when there was no appreciable projection.

Dr. Townsend said taking the foci out would, in nearly every instance in the patient in question, involve opening into a neighboring joint. He would put the patient on antisyphilitic treatment and later consider the other suggestions made.

Chicago Ophthalmological and Otological Society.

Regular meeting held Jan. 11, 1898, in the Stewart Building.

Dr. Montgomery in the chair.

There were eighteen members and visitors in attendance.

The minutes of the previous meeting were read and approved.

Dr. W. F. Coleman was elected president; Dr. H. M. Starkey, vice-president; Dr. C. P. Pinckard, secretary, and Drs. Hotz, Montgomery and Wilder the Committee on Membership for the ensuing year.

The treasurer's report was read and adopted.

Dr. Wood reported a case of

PRIMARY SARCOMA OF THE LID.

Baby A., aged 7 months, an only child, was born a healthy and well-developed infant, and although nursed on the bottle has always been vigorous and to all appearances free from any hereditary disease. There is no history of malignant neoplasms affecting immediate ancestors. When she was 6 weeks old the mother noticed a slight elevation on the right upper lid. It was firm to the touch, rolled about under the finger, and was not surrounded by a red or swollen area, on the skin surface, at least. On consulting an oculist in the neighborhood, he advised her to watch the little tumor, and if it increased in size it might be safely removed later on. It remained in *statu quo* until the child was 3 months old, and then the mother believed it to be growing and consulted a well-known ophthalmologist in Boston. He would not give a positive opinion, but kept the patient under observation for about a month longer before advising its immediate removal. As the family was about to remove to Chicago, nothing was done. The condition of affairs was about this when I first saw her, two months ago: The right upper lid is slightly swollen throughout and of a darker pink than the corresponding left lid; there is a rounded prominence occupying the junction of the middle and inner third of the lid. On palpation an irregular oval, apparently movable body of rather firm consistence and of the size of a white bean is felt, not unlike the ordinary chalazion. The dermal vessels are slightly more numerous and larger than are those of the opposite side. On everting the lid the body seems to project somewhat on the conjunctival aspect of the lid, and corresponding to the projection is a round mass covered with red and thickened mucosa. The vascular supply is decidedly greater than in the ordinary non-suppurating chalazion. The mass appeared to involve the tarsus. There is apparently no pain in the eye and no increased conjunctival secretion.

The tumor was removed completely, under chloroform narcosis, from the conjunctival surface, using a fenestrated forceps. There was free hemorrhage and the tumor appeared to be imperfectly encapsulated. It involved the tarsus, part of which was removed at the time of operation. Macroscopically it resembled a small piece of muscular tissue. Dr. Evans of the Columbia Medical Laboratory, examined the growth and gives the following report: "Fresh specimen, 6x4x2 mm. No epithelial covering. Microscope shows it to be composed of round and spindle cells, more of former, with considerable intercellular substance, some pre-existing fibrous tissue, an artery with unusually thick walls. The growth is sarcoma."

The sections exhibited showed as naked vessels communicating directly with the cells. So far there has been no recurrence of the growth.

In reply to Dr. Pinckard, Dr. Wood stated that the clinical diagnosis rested on the question of the injection both of the conjunctiva and the skin, it being more marked than in an ordinary chalazion.

Dr. Allport showed a case of

TUMOR OF THE FUNDUS,

suspected to be a beginning leucosarcoma of the choroid. The patient a woman 28 years of age, with a vision of 20-20 in each eye. On the right side she has ophthalmic goiter with classic symptoms, the fundus of the eye being normal except for the enlarged veins. In the left eye a small round grayish white elevation, just to the macular side of the disc, which it apparently joins. The tumor is about half the size of a nerve head and looks like a mass of clouds, the elevation being about 1 D. A retinal vessel courses over the surface and some pigment on the surface would seem to indicate that it originated in the choroid. Forming a semicircle around it may be seen many pigmented choroidal splashes. The peripheral field for white is perfect, but a small scotoma for red and green close to the physiologic blind spot was found.

Dr. Henry Gradle reported a case of

TARSITIS

and reviewed the literature. There are on record only twenty cases of this rare affection, but from the similarity of all a well defined type of disease results. The affection is always of syphilitic origin. Four cases with acute onset are reported as early manifestations, while all the others presented a chronic course and occurred late after the infection. It appears in the form of a diffuse, hard swelling of the tarsal plate of the lid. With two exceptions it was limited always to one lid of one side. There is neither pain nor tenderness. As a rule, the skin is not altered; in some instances it is described as livid. In the speaker's case there was intense inflammatory congestion and edema of the skin of the upper lid as long as the case remained under observation. The conjunctiva is generally not involved. In some instances, like the present one, there was catarrhal conjunctivitis with some hypertrophy. In the present case a high grade of congestion and chemosis was observed in the ocular conjunctiva, and the cornea was temporarily clouded. In all cases on record the disease was controlled by specific treatment, but invariably lasted months, several times a number of months. In the speaker's case the patient, a girl of 24 years, did not admit or present evidences of syphilis, but was put first upon mixed treatment, subsequently upon large doses of iodid of potassium without any visible influence. Swelling increased during the observation in spite of the treatment. The accompanying catarrhal conjunctivitis was temporarily aggravated by the patient's improper use of the bandage, but healed on proper management and the use of nitrate of silver applications. This, however, did not lessen the tarsal swelling and influenced but little the inflammatory edema of the skin. A decided control over the tarsal swelling was finally obtained by an ointment of 10 per cent. of pyrogallic acid. The influence of this salve was studied advantageously on account of several interruptions in the treatment with a standstill of the tarsal swelling. The patient was lost from observation before a complete cure was obtained.

Dr. Starkey said: This case is the only one of the kind I have ever seen. I ascribed the same cause as did Dr. Gradle, and gave her the mixed treatment in moderately full doses, but did not check the inflammatory condition at all.

Dr. Robertson of Davenport, Iowa, showed

A POST-ORBITAL TUMOR

taken from a boy about 10 years of age, in whom exophthalmus of the right eye had existed for two years, it being so marked that the lids could not cover the cornea. The resistance was so great that the diagnosis of solid tumor was made. The motion of the globe was *nil*, as also the visual power. Immediate removal was done, and specimen shows that the tumor originated in the optic nerve some little distance behind the eyeball as there is apparently healthy looking nerve between the tumor and the eyeball. It was attached to the periosteum just external to the edge of the optic foramen. The tumor was removed in August, 1896, and since that time the boy has been wearing an artificial eye with no return.

In reply to Dr. Pinckard, Dr. Robertson said that there was no evidence inside of the eyeball except for atrophy of the optic nerve fibers.

Dr. Robertson showed some Texas screw worms removed from the brain of a man postmortem, they having entered through the nose and pierced the ethmoidal plate.

On motion, the Society adjourned.

C. P. Pinckard, Secretary.

Chicago Gynecological Society.

A regular meeting was held Feb. 18, 1898, in the Stewart Building, with the President, Dr. Henry P. Newman in the Chair.

The Society entertained the Trustees of the American Medical Association. The guests of honor were Drs. Alonzo Garcelon, G. C. Savage, I. N. Love, E. E. Montgomery, J. M. Mathews, C. A. L. Reed, Joseph Eastman, J. T. Priestley, Truman W. Miller and John B. Hamilton.

Dr. Franklin H. Martin exhibited two specimens of fibroid tumor of the uterus removed by hysterectomy. The specimens showed how difficult it would be to apply myomectomy to all cases. He thought it would be impossible to have removed these growths without, at the same time, removing the uterus.

Dr. J. Frank exhibited specimens of dermoid cyst which he brought with him from Vienna when abroad last summer.

President Newman extended a cordial invitation to those whose names did not appear upon the program as essayists to participate in the discussion.

Dr. Joseph Eastman of Indianapolis, Ind., then read a paper entitled

VAGINAL HYSTERECTOMY AND IGNI-EXTIRPATION.

The essayist said that the Eastman method for vaginal hysterectomy as devised and followed by him for ten years, was described as long ago as 1890, and its advantages over many other methods of procedure appealed so strongly to those who practiced it, that he hoped he would be pardoned for again rehearsing its details and emphasizing its advantages.

Dr. Eastman then described his method of performing vaginal hysterectomy in detail.

Dr. Fernand Henrotin had seen Dr. Eastman do the operation he had described, very skilfully and beautifully, and considered it at the time a very ingenious method of bringing the uterus into view. Relative to the use of the cautery, he had employed it in every instance of malignant disease of the uterus for several years, believing there was always an advantage in feeling that the tissues were burnt out in this way.

Dr. Emil Ries thought the time for vaginal extirpation of the uterus had passed if the organ was carcinomatous, for the reason that the surgeon by removing this organ alone could not entirely get rid of the carcinomatous process.

The discussion was closed by Dr. Eastman.

Dr. E. E. Montgomery of Philadelphia followed with a paper entitled

REMOVAL OF FIBROID TUMORS OF THE UTERUS WITHOUT HYSTERECTOMY.

He said that in presenting this subject he did not claim to reveal a new surgical device; for, the removal of such growths, without the sacrifice of the uterus, had been done by many operators a number of years since. In view of the hesitancy of many women to undergo a sacrificial operation and of the prolonged and unpleasant phenomena consequent upon a premature establishment of the menopause, he emphasized the employment of the procedure under consideration as an alternative for hysterectomy. There were, he believed, at the present day, but few operators who preferred hysterectomy to myomectomy for distinctly pedunculated subperitoneal or submucous fibroids, but there was a large number of cases in which the organ was occupied by an interstitial or a sessile submucous fibroid, or by many growths of all varieties, as classified by situation, where a healthy functionating organ could still be retained after the removal of the growths. Such practice with proper aseptic precautions was in his opinion attended with less shock and discomfort to the patient than the apparently more simple operation of extirpation of the diseased organ.

The choice of route, whether vaginal or abdominal, depends upon the situation and size of the growth. All pedunculated or sessile submucous and interstitial fibroids, not too large to pass through the pelvis, should be attacked through the vagina. When the growth is so large that it rests above the brim of the pelvis, or the uterus is occupied by a large number of growths, possibly comprising every variety, the abdominal route was preferable. Of course, it could not be questioned that there were cases in which the uterine structure was so occupied by growths as to preclude the possibility of their removal with any hope of the subsequent retention of the uterus, nor would the retention of the uterus be good practice where the presence of growths was complicated by the existence of irrecoverable double tubal or ovarian disease. By either the vaginal or abdominal route, in the majority of cases, the procedure was mainly a process of enucleation in which a blunt dissector and not the fingers should play the important rôle. The enucleation can thus be accomplished through a minimum incision with less danger of infection. Small sized growths of the submucous variety which have partially or completely dilated the cervix, present but little difficulty in either diagnosis or treatment. If the cervix is insufficiently dilated to permit its investigation and exit, a bilateral incision can be made and the tumor removed. It is when the growth is situated within the body with the cervix long and undilated that the difficulty presents. Here a careful investigation of the situation and relation of the growth is an important perequisite to any operative procedure. Such an investigation is only secured by a dilatation of the canal that will permit of digital exploration. This may be accomplished by repeated packing with gauze (Vulliet's method), dilatation with bougies (Hegar's), the use of tents, or bilateral incision of the cervix to or beyond the internal os (Pean's). The latter procedure seems too severe a measure for mere diagnostic purposes; will prove unnecessary for the removal of some growths, and the situation of the incision will prove impracticable or embarrassing in the treatment of others. Dilatation by gauze packing is generally slow, frequently ineffective. Bougies will result in tearing before the canal is open sufficiently to admit the finger. Dilatation by tents is the most satisfactory. Sponge tents accomplish the dilatation most rapidly, but are so difficult to render aseptic, and so easily infected, that their employment is dangerous. The hollow laminaria tent of good size will in the course of twelve hours in the majority of cases render digital exploration possible. Where the dilatation is incomplete it may then be safely effected by the use of bougies. If the surgeon is not prepared for operation at the time of investigation, the dilatation secured may be maintained twenty-four hours by gauze packing. It must be understood, however, that in all these procedures the most rigid asepsis must be practiced.

Having rendered the tumor accessible to the touch, further procedure must depend upon its situation, size and relation. A small pedunculated tumor will in this manner be rendered almost as accessible to manipulation as if situated in the cervix. Dr. Montgomery then reported cases illustrating the use of myomectomy without the removal of the uterus.

Dr. Franklin H. Martin thought that in tumors involving the uterus to the extent of some of those described by the operator a hysterectomy would be a much easier and better procedure.

Dr. Albert Goldspohn reported the case of a woman, 37 years of age, recently married, three months pregnant, who had a single fibroid tumor in the left wall of the uterus, so low down as to act a barrier to pregnancy. He did a panhysterectomy. If this was not the right course to pursue in such a case, he would like to know it.

Dr. N. Senn stated that it was important in transperitoneal myomectomy to make the incision very small, using the knife as little as possible, the enucleation being done largely by the director. The more he had resorted to this method the better he liked it and believes it to be an ideal way to treat by operative procedure uterine myofibromata in all cases in which such a method was possible anatomically or pathologically. He had made it a rule recently to invariably make the incision transversely, for the reason that it minimized one of the dangers attending this operation—hemorrhage.

Dr. C. A. L. Reed of Cincinnati said that with the French treatment of *morcellement*, with the American practice of myomectomy, he believes we are saving organs today which a few years ago were sacrificed, not to unwarranted zeal, but to the fact that our knowledge had not yet attained that precision and accuracy which enabled us to deal with these cases as we deal with them today. The trend of operative gynecology was in the direction of practical conservatism.

Dr. E. C. Dudley had no doubt whatever that a large number of cases of uterine myomata could be treated satisfactorily and safely by the method described by the essayist. In all of his operations during the past ten or twelve years, he should say that more than one-half of the tumors had been removed by myomectomy and the uterus retained.

Dr. Fernand Henrotin spoke in favor of vaginal enucleation of fibroids, whether intramural or submucous. He does not think there is any operation in gynecology so satisfactory as the morcellation of a growth sufficiently large to indicate it, or the enucleation of fibroid tumors through the vagina. It was folly, in his opinion, for any surgeon to attempt to enucleate a subperitoneal growth by the vagina which was situated well up in the abdomen.

Dr. C. S. Bacon emphasized the method of enucleating uterine myomata through the vagina, and directed attention to the indications for it. He asked Dr. Montgomery whether any of the cases operated on by him had become pregnant and what was the course of pregnancy.

Dr. T. J. Watkins referred to the disadvantages of myomectomy. The first of these was the presence of small nodules which later developed and caused trouble. The second disadvantage was the presence of soft fibroids, which had so much of the consistency of the uterus as to make it impossible to palpate them and remove them.

Dr. Joseph B. Bacon reported a case in which he did a myomectomy and left the uterus intact. All things considered, he is satisfied that the woman would have had a better show and her life would have been saved had he performed hysterectomy. He hoped the essayist would keep track of the cases in which he had enucleated so many tumors, and at some future time inform the profession whether the women became pregnant, and as to the course of pregnancy.

Dr. A. H. Ferguson cited a case in which he removed nine myomatous growths through the vagina, the woman being nine weeks pregnant. Most of the tumors were intramural.

Dr. Frank A. Stahl asked Dr. Montgomery whether he found the use of tupelo tents exposed women to any particular danger.

Dr. Montgomery, in closing, said he did not present a method of treatment which would save the uterus in every case. There were cases in which the uterus was involved to such an extent that hysterectomy would be preferable to myomectomy. In the case of Dr. Goldspohn, he thought a hysterectomy would be the preferable procedure. None of the cases operated on had thus far become pregnant. Replying to the question of Dr. Stahl, he said before a tent was introduced it should be placed a few minutes in a saturated solution of iodoform and ether, inserted into the canal, introducing iodoform upon the tent and keeping it in place. In those cases where he desired to explore the cavity to determine the condition, where he had used tents, he had not seen a single case of sepsis as a result. He would not use a tent in a case that had previously suffered from some inflammatory condition of the uterine or pelvic structures, parametric adhesions, etc., as he would be afraid to do so.

Dr. Joseph M. Mathews of Louisville followed with impromptu remarks, in which he made an eloquent

PLEA FOR EXAMINATION OF THE RECTUM IN OPERATIVE GYNECOLOGY.

He believes that all pathologic conditions involving the rectum could be made out by the touch without the use of instruments. Syphilis of the rectum was a disease that manifested but few symptoms. He had met cases where the only symptom complained of was constipation, but upon examination he had found the rectum blocked with a deposit. A lady consulted a gynecologist, who removed her ovaries. A few months after she consulted Dr. Mathews, and upon examination he found cancer of the rectum. He performed a Kraske operation. The point he desired to draw attention to was whether the rectum was examined by the gynecologist. He did not think so. He had reported five fatal cases of disease of the rectum that had been operated upon by gynecologists, and yet it was the rectal disease that ended life. The gynecologist, before doing any operation in the abdomen, should always make a careful examination of the rectum.

Association of American Anatomists.

Upon the invitation of Cornell University, the Association met at Ithaca, N. Y., Dec. 28-30, 1897. Morning and afternoon sessions were held on each of the three days excepting Wednesday, when all the affiliated societies met in the afternoon with the American Society of Naturalists. Notwithstanding the small attendance the sessions were fully occupied with reports, papers and discussions, and several papers were read by title for lack of time. After a brief introductory by the President, Dr. Frank Baker, Dr. B. G. Wilder read an obituary notice of Dr. Harrison Allen, one of the founders and presidents of the Association. The report of the Secretary-treasurer, Dr. Lamb, showed that there were 105 active and 4 honorary members. Dr. Allen and Dr. Wm. Laurence Dana of Portland, Me., had died and Dr. P. J. McCourt of New York City had resigned. Beginning with the present year the annual dues are $3. The circular and blanks in reference to the anatomic peculiarities of the negro race were ordered to be modified and copies sent out for report of cases. The Association adopted the report of the majority of the Committee on Anatomic Nomenclature and ordered it to be published and distributed as soon as practicable, accompanied by the objections of the minority of the Committee, and comments thereon by the Secretary of the Committee. Of the neural terms recommended, more than one hundred were identical with those adopted in 1895 by the Anatomische Gesellschaft.

The following papers were read and discussed; they were illustrated by specimens, photographs and diagrams:

P. A. Fish of Ithaca, N. Y., "A fluid for the retention of the natural colors of anatomic specimens," and "Mummification of small anatomic specimens." George S. Huntington of New York City, "Comparative anatomy and embryology as aids to the teaching of human anatomy in the medical course." Dr. Wilder, "An adult and healthy living cat, lacking the left arm, excepting the scapula, and having the heart apparently at the epigastrium." Woods Hutchinson of Buffalo, "Relative diameters of the human thorax." D. S. Lamb of Washington, D. C., "Pre-Columbian syphilis." Charles H. Ward of Rochester, N. Y., "A cranio-mandibular index." Prof. Howard Ayers of the University of Missouri, "The membrana basilaris, membrana tectoria and nerve endings in the human ear"; read by Dr. Hopkins. Dr. Wilder, "Certain resemblances and peculiarities of the human brain." B. B. Stroud of Ithaca, N. Y., "The ape cerebellum." Dr. Fish, "The brain of the fur seal, *Callorhinus ursinus*." Dr. Huntington, "The eparterial bronchial system of mammalia." J. A. Blake of New York City, "The relation of the bronchi to the thoracic wall." Thomas Dwight of Boston, "The distribution of the superior mesenteric artery." D. W. Montgomery, University of California, San Francisco, "Sebaceous glands in the mucous membrane of the mouth"; read by Dr. Lamb. Dr. Stroud, "Notes on the appendix." Prof. S. H. Gage of Ithaca, "On the relation of the ureters in the cat to the great veins; with variations." Dr. Wilder, "A number of specimens of either unusual or specially instructive character." H. A. Surface, Fellow in Cornell University, "Notes on the fish fauna of Cayuga Lake."

The following papers were read by title: Prof. George A. Dorsey of Chicago, "Description of two Koutenay skeletons," and "Two examples of unusual ossification of the first costal cartilages." E. R. Hodge of Washington, D. C., "Relation of sex to the size of the articular surfaces of the long bones." J. T. Duncan of Toronto, "Anus vulvalis." Woods Hutchinson, "A skin-heart?"

The following officers were elected for the ensuing term: B. G. Wilder of Ithaca, president; Geo. A. Piersol of Philadelphia, first vice-president; William Keiller of Galveston, Texas, second vice-president; D. S. Lamb, of Washington, D. C., secretary and treasurer; F. J. Brockway of New York City delegate, and R. W. Shufeldt of Washington alternate to Executive Committee of Congress of American Physicians and Surgeons; F. J. Shepherd of Montreal member of the Executive Committee of the Association, in place of Dr. Huntington, term expired.

The following candidates were elected active members of the Association: Frank Irving Brown, A.M., M.D., of South Portland, Me., instructor of anatomy, Portland School for Medical Instruction. George Amos Dorsey, A.B., Ph.D., acting curator of anthropology, Field Columbian Museum, Chicago. Grant Sherman Hopkins, D.Sc., assistant professor of anatomy, Cornell University. G. Carl Huber, M.D., assistant professor of histology, University of Michigan. A. T. Kerr, M.D., acting professor of anatomy, Medical Department, University of Buffalo. Alfred King, A.B., M.D., demonstrator of anatomy, Bowdoin College. Edward James McDonough, A.B., M.D., demonstrator of histology, Bowdoin College. John Anderson Springle, M.D., C.M., lecturer on anatomy, McGill University. Robert J. Terry, M.D., demonstrator of anatomy, Missouri Medical College, St. Louis. Prof. Albert H. Tuttle, D.Sc., University of Virginia.

The following eminent anatomists of the Old World were elected honorary members: Dr. Mathias Duval, Paris; Dr. Carl Gegenbaur, Heidelberg; Dr. Wilhelm His, Leipzig; Dr.

Albert von Kölliker, Wurzburg; Dr. Alexander Macalister, Cambridge; Dr. L. Ranvier, Paris.

It is understood that the next meeting will be held in New York, during the Christmas holidays, in conjunction with the Society of Naturalists and other affiliated societies.

New Jersey State Sanitary Association.

(Concluded from page 557.)

Dr. B. Meade Bolton of Princeton read a paper on

VITALITY OF PATHOGENIC GERMS IN DRINKING WATER.

One of the most striking features of the bacteria is variability. These organisms are subject to variability of shape, of all these vital manifestations, such as fermentation, production of disease and of pigment, in the capacity of living in various media. They possess no characteristic not subject to variation. The anthrax bacillus, ordinarily a short sharply cut rod forming spores or resistant bodies under favorable conditions and capable of producing a virulent infectious disease in man and animals, sometimes becomes so distorted in shape as to be unrecognizable under the microscope. It may be made to lose its power of forming spores and of producing disease. The diphtheria bacillus is sometimes a fine uniformly stained rod; at others it appears as a large irregular nodular rod. Sometimes both ends are swollen and apparently distorted, sometimes one end alone. Again, the rod stains irregularly; the protoplasm is collected into clumps and granules in the cell membrane. The bacillus prodigiosus frequently resembles a coccus, and at others appears as a distinct rod or even a short thread. This organism which ordinarily forms a deep red mass on the nutrient medium, frequently loses its power of producing pigment. Percy Franklin has found out that with certain bacteria it is possible to force them to produce certain products of growth by gradually introducing certain substances into the nutrient medium. The speaker had found that the bacteria may be accustomed gradually to the presence of substances in the nutrient medium that would be sure to destroy or inhibit the growth. There is even evidence that the bacteria may be finally stimulated to increased growth by the gradual introduction of substances classed as germicides. But it is useless to multiply examples. The variability of the bacteria under the influence of external conditions is well recognized, and the sensibility of these to environment has been abundantly shown. This property must be ever borne in mind. It must not be forgotten that the bacteria are living cells, and not chemic compounds. All cells have more or less individuality, and all agglomerations of cells have variable characteristics. This can be illustrated by any series of experiments with disinfectants. The use of a certain amount of the disinfectant may destroy many of the organisms, and yet leave many more unaffected. The same amount of the disinfectant may kill more of the organisms in one culture than in another. Hence we can not wonder at the vitality of the bacteria in water. The typhoid fever bacillus has been found to live for thirty days in water into which it was introduced intentionally, and yet it is frequently found to die out much sooner than this in water. In many experiments he had endeavored to arrest the vitality of various pathogenic bacteria and the discrepancy in results was a surprise and a disappointment. Sometimes they diminished and disappeared much more quickly than at others. Yet this is not to be wondered at. There are many factors that determine how long they are likely to remain. The number introduced, the special adaptability to water of those that are introduced, the temperature of the water, the number of other kinds of bacilli present, all are factors in the play. Again, the amount of organic matter that could furnish a supply of nutrition might be a factor. He always found that pathogenic bacteria introduced into water disappear sooner or later. They do not multiply even in foul water from a shallow well. and fail even when this water was freed from other bacteria that is sterilized. He was able to obtain a multiplication in water only after he had added a certain amount of peptonized beef broth. It was necessary to add an amount of broth estimated to contain 67 milligrams of organic matter to a liter of water before any growth could be obtained of typhoid bacillus, and the equivalent of 400 milligrams of organic matter before any multiplication of the cholera organism could be obtained. This amount of organic matter is never found in the most contaminated water, and not only this, but the kind of organic matter used in the experiments is not found. What is found ordinarily would be less suitable for the typhoid and cholera bacilli than the carefully prepared peptonized broth used in the experiments, and it may safely be stated that where water becomes contaminated with pathogenic bacteria these will disappear rapidly, owing to lack of proper nutrition and to the conflict of other bacteria, the saprophytes, found always in contaminated water. There are bacteria that multiply even in distilled water, and these are the aquatic bacteria which quickly make the pathogenic form disappear. The latter are very choice in their food. We must prepare the media for their cultivation with great care, and they stand no chance in competition with the hardy saprophytes found in water. The pathogenic must be given conditions closely resembling those of the animal body to grow and multiply; the saprophytes, on the other hand, flourish at a lower temperature and with less elaborate food. This is the reason why the examination of water shipped to the laboratory is of no use. In a few hours it is changed as to its flora, some abundant at first are less so; others, few at the start, increase often enormously. It is an interesting experiment to examine water freshly caught, let it stand and examine at intervals. About two forms usually survive and increase very rapidly. One is a bacillus fluorescent, non-liquefacient, and a micrococcus, to which he gave the name micrococcus aqualilis. For this reason it is never worth while to attempt an analysis of shipped water.

Results are misleading. The danger from contaminated water arises from the use of the water very shortly after contamination. Of course, if there is a source of continuous contamination, then the water is dangerous at all times, and the organisms are easily found, as during the cholera epidemic of Hamburg and Altona. In case of typhoid the matter is peculiarly difficult and time-consuming. Again, another difficulty is the want of definite characteristics of typhoid bacilli themselves. The matter of contamination of water with this form is of more importance to us in this latitude, and it would be of the greatest value to be able easily to recognize this organism. Satisfactory results are not obtainable without the expenditure of a great amount of work and many precautions in the collection of samples, and immediately making cultures. He questioned the utility of one examination. A well may be free and contaminated at different times. The chief if not the only danger arises from surface contamination. If water filters through a soil it is purified. Now, during a dry season, there is little danger from the surface drainage. Only in case there is a crack or crevice leading from a privy vault or other source of contamination is there great danger of infection. Esmarch has shown that pathogenic bacteria rapidly die out in the soil within one or two days, so that it would be a difficult matter really to make the bacteria pass from a privy vault to a well through soil in which there are no crevices. Flugge is of opinion that infection of water is more apt to take place indirectly than directly. He does not deny any more than others that what the Germans call "massen infection" takes place from drinking water. In the case of typhoid fever Dr. Bolton always believed that danger of spreading the disease arises as much from indirect contact of food and vessels, for food and drink, with the typhoid excreta as from contaminated water. Finally, pathogenic bacteria usually have a brief life in water: under ordinary conditions multiplication and growth are not favored; the danger of the spread of the disease in this way is transitory unless the source of contamination is continuous as from a channel leading from a privy vault. Water is probably infected frequently after it is drawn and carried into the house for use just as food probably is.

Mr. H. B. Baldwin, chemist of the Newark Board of Health, said we may search for a long time in the literature of the subject and not get such definite information. It is well to know what conditions favor or destroy the growth of bacteria in open supplies. In the case of surface water it is important to know definitely what conditions affect the vitality of pathogenic germs, as it is supplies of this character that usually cause the most serious epidemics. It is also in such areas usually impossible to find the germ on account of dilution or to the fact of the absence when looked for; in the case of ground water the action of the soil on the vitality of the bacteria is most important. In London, a few years ago, the relation of cholera spirillum and typhoid bacillus was discussed. Experiments were made in sterilized soils of white sand, yellow and garden earth, and peat under various conditions of moisture. It was found that the cholera germ in dry soil did not live more than two or three days; in ordinary dry soil, about three days; in moist white sand, seven days; in moist yellow sand and garden earth, thirty-three days; and under certain conditions of moisture and evaporation, the germs were alive at the end of 174 days, the life-supporting power of white sand being the least. In peat, death always occurred in about twenty four hours. notwithstanding the amount of moisture. The typhoid bacilli in ordinary dry soil were found up to the ninth day in the white sand; to the eighteenth in yellow and to the fourteenth in garden earth. In moist white sand they were alive on the twenty-third day; in yellow sand and garden earth on the forty-second day. Peat caused death in twenty-four hours. Now, in view of the destructive action of peat it seems reasonable to suppose that peaty waters, so plentiful in this State, would excite an unfavorable action on the growth of bacteria contained therein. Miquel says when samples of various waters, pure and impure, are maintained at a constant temperature of 68 degrees F., they vary differently in the matter of the increase of their bacterial contents. With pure water the increase is rapid and temporary, while with impure water it is slow and lasting. The decrease of bacteria when intentionally introduced into water is due no doubt to the presence of toxins produced either by these or other bacteria. These toxins are very volatile and the following interesting experiments by Prof. Martin furnish, in a striking manner, the deadly effect of the toxins on bacteria. Some water slowly distilled in a special apparatus at a temperature between 86 and 95 degrees, was inoculated with the germs from 1650 liters of air. The number of bacteria found in the water were: immediately 75 per cent.; six days later, 7 per cent.; sixteen days later, 1.5 per cent. Note the difference between this and the next experiment. River water sterilized in the ordinary manner was inoculated with germs from twenty liters of air. The number of bacteria per cubic centimeter was then 6.5 per cent.; seven days later, 750,000 per cent.; ten days, 900,000 per cent.; thirty-one days, 16,750,000 per cent.; ninety days, 62,500 per cent.; 273 days, 48,000 per cent. In a paper read before the American Chemical Society by Dr. Dnnham, he states: The chief aim of the examination of water with reference to its fitness for drinking, is to learn whether it contains, or is likely to contain, any poisonous substances or the contagion of disease. The detection of mineral poison falls within the domain of chemistry. The actual isolation of specific bacteria can only be done by bacteriologic methods; true so far as it goes, but he only stated the smaller part for the chemist; leaving out the question as to the possible extent to which the bacteriologic examination may be pushed, the practical and usual examination consists of counting the number of bacteria per cubic centimeter, and searching for the typhoid bacillus and the bacillus coli communis. The latter as a constant quantity in feces, indicates sewage pollution. The typhoid bacillus is rarely found in drinking water, although most positively known to be present. This leaves the colon bacillus as the main evidence of the bacteriologist of sewage contamination. As he does not find the pathogenic germ he can not do more than class the water as dangerous.

It should be remembered that the bacteriologist looks for something that is in suspension, while the chemist determines substances in solution. The bacillus may, in the case of well water, be temporarily filtered, while other soluble matters are not affected. On the other hand, the polluting matter may be so largely diluted that chemic tests will fail to reveal it, and yet there may be enough coli bacilli to give a positive indication. As an illustration, a few days ago he had examined some water from a well situated within a few feet of a cesspool and found it grossly polluted. A bacteriologic examination failed to reveal any coli bacilli, and pronounced the water safe. Here the bacilli had been filtered out by the soil. But who knows what day they may come again, or rather through the soil filter? The city supply of Newark furnishes an example of the other condition. Any one who has seen the water shed can not doubt the presence of coli bacilli constantly in that water, as it has been for years; yet chemically, the water is of excellent quality. This is not the fault of the bacteriologist: there simply did not happen to be any germs in the few drops he examined. Do not understand me to belittle the work of the bacteriologist, said Dr. Baldwin; his aid is of the highest advantage, but it will readily be seen that there may be many cases where either form of examination would give positive results, and hence for safety, in all cases both must be employed, as each supplements the other.

Dr. N. L. Wilson of Elizabeth read a paper on

NOTIFICATION OF MEASLES AND WHOOPING COUGH.

He said: There were 275 deaths from whooping cough in New Jersey and 390 of measles during 1896. The first carried off more than the average of persons during the last eighteen years. Measles gave 2907 deaths, a low estimate because cases of both are not always properly recognized, and in many instances the primary cause of death is not given. In the last eight years there were 2223 of whooping cough and 1354 of measles. The majority of the profession are of the belief that we can not restrict the spread of either disease, because of their communicability at such an early period. The question is simply one of expense. Notification of measles without corresponding disinfection, isolation, etc., is useless. They could be limited if properly cared for and the work carried out. Great success attended the work in this way in Birmingham. He mentioned a case where a child had measles, recovered, the family removed. In two weeks a child of the new family who moved in had measles and died from bronchial pneumonia. Here, isolation in one room and prompt disinfection would have saved the last child. Disinfection can not be done unless notification is insisted upon. While we acknowledge the difficulties in the case, yet it is worth an effort. Measles respects nothing but sanitation. This muzzles it and makes the epidemic milder. The etiology of measles shows it to be intensely contagious all the time, most at full efflorescence, less in the period of incubation and least or not at all after desquamation. It is not believed that we have found the specific organism of either. Whittaker says, "prophylaxis is almost impossible, but sickly, debilitated children should be removed from the house where it exists." All know how an epidemic will run through schools. One hundred and twenty cases were confined to the pupils of one parochial school. When asked how this was, the reply was: It is a simple matter; the teachers were required each morning to ask the scholars as to the presence of sickness at home or in the neighborhood. In case of an affirmative, the scholar was not to come in the afternoon. The names and addresses were sent to the chief teacher, who investigated the case, and thus the spread was prevented. The public schools of Elizabeth are connected by telephone; the health inspector communicated with the superintendent of schools each morning; he notified the principals of the various schools, so that they are familiar with the number and cause of disease in their respective schools. If the physician or parents fail to report either of these diseases we can not attempt to check them. He was heartily in favor of notification. It is the duty of the parents and of the physician to do this whenever they can. There may be difficulties in the way of inhibition of the two diseases, but we should at least establish the practice, and undoubtedly the death rate would be reduced and life among children prolonged.

In the discussion two or three opposed notification, but this appeared to come from those not of advanced ideas as to etiology of disease, while the consensus of opinion, though not expressed by the continuation of the discussion, was decidedly in favor. As there were several matters of business demanding the attention of the Association prior to closing the session, these gentlemen did not care to spend the time when, as one very prominent member remarked, such views were utterly in opposition to all sanitary knowledge.

The officers elected for the next year were: President, Dr. John C. Smock of Trenton; vice-presidents, V. L. Davey of East Orange; Dr. Daniel Strock of Camden and G. W. Howell, C. E., of Morristown; recording secretary, Dr. James A. Exton of Arlington; corresponding secretary, W. G. Hoopes of Atlantic City; treasurer, Geo. C. Olcott, C. E., of East Orange.

SELECTIONS.

Hygiene of Degeneracy as Illustrated by Charles and Mary Lamb.—Dr. Kiernan recently presented to the Chicago Academy of Medicine, a paper on this subject. He pointed out that the paternal branch of the Lamb family came from the fens of Lincolnshire where laudanum using is rife, albeit with comparative immunity from the usual effects of opiophagism. In these districts, where degeneracy of type is frequent but ascribed to malaria, John Lamb, the father of Charles, was born. While still a child John Lamb's family removed to Lincoln so poverty-stricken because of the insanity of its head that he had to be made a foot boy. The fact that he subsequently became barrister's clerk indicates gentler early nurture than this early thrusting into the fierce struggle for existence would seem to imply. John Lamb grew up gay, inflexibly upright, with a dash of chivalry in his nature and a poetic tendency. At the age of 50 years he became insane and died demented. His sister was an uncanny old soul, whose silent ways and odder witch like mutterings and mumblings, coupled with a wild look in her eyes as she peered out from under her spectacles made her an object of dread. The maternal ancestry was neuropathic. The mother exhibited the capricious affection often present in the degenerate. The maternal grandmother had that moral anesthesia toward mental suffering which is an offspring of degeneracy. Elizabeth Field, many years younger than John Lamb, her husband, was a handsome, dignified, pleasure-seeking hysteric, lacking insight into child character. Toward Mary and Charles she never manifested maternal tenderness. Mary, a shy, sensitive, nervous, affectionate child, who early evinced liability to brain disorder, peculiarly needed judicious care. The mother always loved John, the eldest, a handsome, lively boy, who became what favoritism was sure to make of an egotist; treated with indulgence by brother and sister who exempted him from any share of the family burden even when he was prosperous. Mary Anne Lamb, born Dec. 3, 1764, was the third, while Charles was the youngest of seven children. All died in infancy save John, Mary and Charles. Mary Lamb was brought up in a lower middle-class home relieved alike from the stress of poverty and speculative wealth. She received her education in a day school. The best of her education was the library of her father's employer. Here she was early left to browse without prohibition on the principle advocated by Ruskin. The degenerate absence of that finer sympathy of human nature in its most alluring aspect eminently unfitted Mary's mother and grandmother for the training of a neurotic child. The primary *ego* so prominent in degenerates while decidedly obtrusive in John, Mrs. Lamb and Mrs. Field, was wonderfully subordinate in Mary and Charles Lamb for children of such heredity. Charles, a weakly child, had frequent night terrors, learned to speak with difficulty and stammered throughout life. The pleasure-seeking nature of his mother, whose maternal tenderness like that of most hysterics had been exhausted on her first-born, devolved his care upon Mary, who mothered him. This outlet for her affection naturally dispelled her loneliness. In after life she warmly described the wholesome influence upon her troubled mind which devotion to Charles brought. As his mind unfolded he still found in her that genial care which had cherished his frame into health. With his hand in hers he first trod the Temple Gardens, spelled out the inscriptions on the sun-dial and on the tombstones in the old burying-ground and wondered, finding only the virtuous, "where all the naughty people were buried." The familiar features of the neurotic child appear in the autobiographical sketch Charles Lamb contributed to "Mrs. Leicester's School."

In the Lamb household the domestic outlook grew dark as soon as Mary was grown up. Her father's faculties received a shock and her mother became a paralytic hysteric. At 15 years of age Charles left Christ's Hospital to take up the burdens of an adult. Mary had not only to make head against sickness, helplessness and old age, but to support the family by millinery. She employed herself thus from the age of 21 to 32. When Mary was 30 and Charles 20, the father fallen into dementia had been pensioned off by his employers. Charles, under the stress of puberty, of an unfortunate love affair, and of his struggles to support the family neglected by John, became so insane as to require hospital care. He was able to resume his usual labors as clerk in the India house after six weeks treatment. The psychosis was that unstable type of melancholia so frequent in degenerates, in which flashes of exultation through the emotional gloom are remembered with keen rapture. No sooner was Charles recovered than John met with a serious accident. Whilst in health he had spent his earnings on himself; he did not hesitate to demand home nursing, causing renewed anxiety to his brother and sister. This was the last ounce. Mary, worn out with years of nightly and daily attendance upon a demented father and a hysterically paraplegic mother, harassed by a close application to millinery, was strained beyond physical endurance. About Sept. 15, 1796, the family observed mental symptoms which had so increased by September 21 that Charles early in the morning sought but failed to find Dr. Pitcairn. That afternoon Mary, seized with a sudden frenzy, snatched a knife from the table, pursued the apprentice, when her mother interposing was stabbed, dying instantly. Mary was placed in a private insane hospital where she in a short time recovered, but subsequently became a cyclothymiac. Such a combination of depressing factors constituting a proper etiologic moment would suffice, even in an organization with little or no morbid heredity, to produce a serious transitory frenzy without consciousness of the violent act. The two careers of Mary and Charles Lamb illustrate how, even under the burden of inherited degeneracy and the no less terrible strain of an environment entailing a fierce struggle for existence, a large amount of soundness of intellect and morality may survive. They also illustrate the beneficence of physiologic atavism causing continual attempts to regain a normal type lost for some generations. In Charles Lamb's career there is much to indicate that had dietetics been as well understood then as today, much of his sufferings and so-called eccentricities might have been avoided. The childhood of both Mary and John Lamb demonstrates how readily, in minds of degenerates or of persons at a certain state of culture, the germs of unwholesome atavistic beliefs are created to form the basis of much that proved absurd and even dangerous in after life, despite careful education subsequent to puberty. The two cases also illustrate very fully, since both Charles and his sister were ardent students of the older English dramatists and the older English literature, how much unwholesomeness there lies in this as contrasted with works on emotional religion or dogmatic theology. Charles and Mary were both unquestionably devout but with a certain largeness of view which proved a source of mental hygiene in place of a poison like most dogmatic theology and religiosity. Undoubtedly Mary's religious views tended to comfort her when she discovered that she had slain her mother during a fit of insanity. Her mental state, however, differed decidedly from that moral anesthesia produced in certain insane by a hospital sojourn, which makes them so delightfully altruistic within the walls and so brutally egotistic without. Charles Lamb's mental breakdown, which occurred at the decidedly critical period of puberty, illustrates the benefit of hospital care and the folly of home treatment.

The Abuse of Medical Charity; A Critical Review of Recent Literature.—Dr. Frederick Holme Wiggin of New York read a paper with this title before the New York State Medical Association, Oct. 12, 1897. His object was not so much to present individual views as to cull from recent literature, both lay and medical, the opinions of many writers. He said that it was easy to demonstrate conclusively that as at present administered medical charity is demoralizing to both the recipients and the donor. Some idea of the alarming growth and extent of this evil might be obtained from the carefully prepared report of Dr. Stephen Smith to the State Board of Charity. Here it was shown that during the year 1895, 837,971 persons applied for and received free medical treatment at 105 dispensaries in that city; that 1,418,847 free visits were made by these applicants to these dispensaries; and that 78,000 persons received free board, lodging, nursing, drugs, surgical dressings and treatment; in other words, that something more than 49 per cent. of all who live within our borders had claimed in one year to be unable to care for themselves. This should be contrasted with another statement by Dr. Smith to the effect that during the period from 1791, when the first dispensary was established in New York, to about 1870, the applicants for charity bore a ratio to the total population of 1.5 per cent. Dr. Wiggin then went on to quote from an editorial in the *New York Herald* to show that Greater New York spent fifty millions of dollars every year on charities, and that according to a conservative estimate fully 50 per cent. of the donors' money was diverted from the purpose for which it was intended and was practically filched from the poor to whom it rightfully belonged. Again, according to one author, Dr. J. B. Huber, one might find in large numbers at dispensaries such people as actors, opera singers, gamblers, bartenders, policemen, farmers from out of town, prosperous business men and those owning houses, lawyers, and perhaps even a street railway president. According to another author, Dr. George F. Shrady, fully 50 per cent. of the applicants in the reception room of a well-known institution, which he dubs "the diamond dispensary," were well dressed, 10 per cent. were finely dressed, more than half of the men bore no evidence of poverty, and among the women there was an attractive display of fine millinery; yet all obtained the free treatment supposed to be given only to poor persons. A reporter on one of the daily papers, in describing what he saw at a well-known "clinic," stated that not more than one in fifty was at all shabbily dressed, a large majority were fairly well dressed, one-third of them were quite presentably dressed, and perhaps one fifth were positively well dressed. The reader of the paper said that he knew of a man who paid an enormous rent in a fashionable apartment house near Central Park, and who spent many thousand dollars a year on living expenses, yet he went to what Dr. Shrady had so aptly termed "the diamond dispensary" on the plea that his expenses were so heavy that he could not afford to pay a fee to a doctor. Surely, the author continues, these instances "certainly show the spirit in which charity is asked for and accepted; it is largely a desire to save money, without apparently thinking that self-respect is lost in the effort, or that a wrong is done to the really poor and to the physician, who is certainly as much entitled to his hire as the clergyman, or other members of the community, as he too has social obligations to fulfill." More than this, as Dr. Schweck had well said, in the *Philadelphia Press*: "People of means who go to charity dispensaries and receive treatment free of charge, representing themselves to be too poor to pay for medical services, commit a criminal act, for they obtain what they are not entitled to and do it under false pretenses." Another and important aspect of this subject had been revealed in a communication from Dr. G. M. Roe, Medical Superintendent of the Boston City Hospital, to the *Boston Herald*. He says: "It is a generally accepted fact among people who have had large experience in doing charitable work that the first thing that a man or woman will accept as charity is medical attendance. They will accept free service of the doctor when you could not prevail upon them to accept rent or fuel or anything of the kind as a gift. The acceptance of gratuitous medical attendance is the first step toward pauperism. There is already a tendency toward what is generally known as 'nationalism,' a belief among the common people that the city and State owe them a living, and that medical attendance, among other things, should be furnished them by common taxation, regardless of their financial standing as individuals." Again, as Dr. J. J. Stevenson has expressed it in the *Mail and Express*: "If recovery from disease be secured at the expense of self-denial, the memory of the cost will lead, in ordinary cases, to care that a recurrence of disease and attendant expenses may be prevented. But if the careless feel that treatment, medicine and even diet can be had simply for the asking, there can be no reason for resisting the natural tendency to neglect the laws of health. . . . It is not surprising that the reckless poor see in such careless giving an acknowledgement of the unequal distribution of wealth and believe that it is founded on injustice; nor is it strange that the anarchist's cry is not for opportunity to earn by labor, but for such distribution of wealth as may enable all to enjoy the luxury of idleness." The following are the conclusions arrived at by Dr. Wiggin after a critical review of the subject: 1, that medical charity as at present administered is an unqualified evil, and is seriously menacing our existing social conditions; 2, that the application for free treatment of those able to pay the physician a moderate fee for his services robs the really poor; 3, that all medical charitable institutions should be under the direction and control of State and local boards of charities, who should have the power to enforce their rules; 4, that all applicants for medical charity should be investigated by local charity boards and the unworthy excluded; 5, that no medical charitable institution should be allowed to charge nominal sums for medical or surgical service, nor should they be allowed to charge for medicines or appliances; 6, that all physicians connected with charitable institutions should be paid for the service which they render; 7, that it should be made a misdemeanor, punishable by fine for any person to receive free medical treatment by reason of false representations as to financial condition, and 8, that State or city aid should not be granted to private medical charities.

PRACTICAL NOTES.

Therapy of Sulphate of Duboisin.—This preparation may be used both by the mouth and hypodermatically; preferably by the latter. Among the indications for and against its use are the following: Cases of excitement due to hallucinations and delusions give excellent results. In all forms of chronic insanity with excitement, and in occasional cases of epilepsy, it may be used as a sedative with good results. The author concludes that duboisin should be used only in physically healthy persons. It should never be used, or only very carefully in debilitated persons. It is not suited to acute mania, and is distinctly injurious in melancholia. Duboisin is preferable to hyoscin or hyoscyamin, as the quiescent state established by its use is of longer duration, and there is less prostration during or after its use than is the case with those drugs. The after-effects are not so marked, and few serious cases occur. Its action in some of the worst cases is described by the patients as soothing rather than prostrating, and it does not interfere with the recovery of those treated with it.—*British Medical Journal.*

Surgical Treatment of Hematemesis.—Cazin recently operated on two cases of fulminating hematemesis, one caused by a gunshot wound into the stomach, the bullet passing out through the intestines, the other by a few slight erosions on the posterior wall of the stomach, from which the blood was pouring in sheets. Dieulafoy reports a similar case and is inclined to consider these slight superficial erosions the incipient stage of an ulcer, proposing the name "exulceratio simplex." In both of Cazin's cases recovery was prompt and complete after the stomach had been opened up largely and a few stitches taken in the bleeding points. He ascribes his success to the intravenous injection of one and one-half liters of artificial serum during the operation and again in the evening, as the patients were exsanguinated and ready to collapse. Roux has also had a similar experience in the case of an ulcer which he resected. Marion in his thesis collected six observations, three fatal. Fournier relates several cases of copious and repeated hematemesis in syphilitics, promptly cured with specific treatment after all other medical means had failed. He claims a place for syphilis in the etiology of ulcus rotundum.—*Bull. de l'Acad. de Méd.*, January 18-25.

Glycerin Condoms for Artificial Abortion.—The experience that intra-uterine injections of glycerin were followed by intoxication, injury to the renal parenchyma, destruction of the red corpuscles, chills, dyspnea, etc., has caused them to be rejected by many, although the fact is universally recognized that glycerin is the most prompt and reliable of all means to induce contractions of the gravid uterus. H. Saft of Breslau announces that this power is due to the hygroscopic properties of glycerin. It draws the water out of the tissues and out of the nerves and ganglia, thus stimulating the latter to induce contractions. As the glycerin is absorbed by the blood it draws the water out of the corpuscles; they shrivel, die and dissolve. He has devised a means to use glycerin without allowing it to be absorbed, introducing it in an ordinary fish-bladder condom, sterilized by the Schimmelbusch process of sterilizing catgut (ether, sublimate, alcohol). The condom does not interfere in the least with the hygroscopic action of the glycerin through its membrane walls, but it prevents the absorption of any considerable amount of glycerin into the organism. The condom is inserted empty on a bougie to which it is fastened, the end projecting 2 cm. to avoid tearing. It is then filled through the bougie with 100 cm. glycerin and the mouth tied with an elastic cord to prevent the escape of the glycerin. The bougie is cut to the right length to ensure its correct position between the fetal membranes and the uterus, the outer end just reaching to the entrance of the vagina, which is closed with a cotton pad. The glycerin condom acts as a foreign body while the glycerin exerts its peculiar properties safely through its walls. The condom must be tested and water-tight membranes rejected. Saft is now testing other substances with high endosmotic power to find one equally efficient and absolutely harmless, to substitute for the glycerin, such as sodium sulphate.—*Deu. Med. Woch.*, January 20.

The Grippe and Its Therapeutics.—All our European exchanges refer to the prevailing epidemic of grippe, which is raising the death rate everywhere. Maragliano notes the indirect action of the grippe in cases of existing disease, usually manifested in disturbances of the nervous system, especially in disturbed cerebral functions. He has thus observed meningitic manifestations in broncho-pulmonitis, in intestinal catarrh or simple sciatica, in which they are an unusual complication. Another remarkable fact is the tendency of the pyogenic cocci to locate wherever there is a favorable soil starting at once into virulent action; for instance he notes pleuritis commencing pyogenic from the start, broncho-pulmonitis with streptococcic infection and lobar pneumonitis with notable pyogenic manifestations. The rapid appearance of congestive or hemorrhagic phenomena in affections usually free from them, is another feature of the epidemic. Quinin in sufficient doses, he adds, constitutes an almost specific remedy.—*Gazetta d. Osp. e d. Clin.*, January 23.

Re-education of the Muscles and Nerves in Tabes is justly considered a great advance in the therapeutics of this affection. E. Frenkel's system is now supplemented by others seeking to educate the muscles of the inferior members. Goldscheider and Leyden have devised various apparatuses for restoring the disturbed co ordination by exercises that establish compensation. Some of them are described and illustrated in the *Deu. Med. Woch.*, of January 27 and February 3, which seem destined to accomplish remarkable results in this line, requiring sufficient attention to divert the mind and render the exercise interesting. The influence of suggestion is also important. One is a row of shallow wooden goblets on a sloping shelf, with a similar shelf above and below, in front of which the patient sits, and touches with the tip of his foot the various goblets in turn or alternately from shelf to shelf. Balls in the goblets are to be touched without pushing them out. Another is a narrow platform with hand rails and triangular slabs set upright in the floor at intervals, over which the patient steps. Their position can be altered at will. Another is a spiral marked on the floor, along which the patient walks, supporting himself by a rope from above. Another is a small ladder; the patient seated, inserts the tip of his foot between the rounds in turn. The patient's leg is assisted by an attendant whenever necessary. Simpler exercises are accomplished reclining, with a frame from which the leg is suspended. They urge the advantages to be derived from simple exercises of the limbs in a bath, when they are buoyed up by the water salts. Goldscheider is now experimenting with a bath for the purpose in which the patient can stand erect with his body under water. Leyden by the way, rejects the syphilitic etiology of tabes, which he has always ascribed to "sensibility disturbances." Gutzmann has recently called attention to the great benefit to be derived from the mirror in re educating the muscles, controlling their work by the eye. He separates the muscular act into its component parts and has it performed thus in sections, before a mirror.

Asphyxia Neonatorum.—Richard Hogner, M.D., Boston, Mass., thus describes his method of treatment: The operator seats himself on a high chair; has a tub of lukewarm water placed on the floor at his right hand, with vessels of both hot and cold water within easy reaching distance. He holds his legs together—somewhat bent at the knees—and in an inclined plane; lays his left arm (if he be right-handed) with the "palma manus" turned upward upon the "femores," so that the wrist rests between his knees, and the open hand, with the fingers spread, is free in the air. The child is laid head downward on its back along the operator's left arm, so that the head and shoulders can be supported by the fingers and the infant securely held. The child's body must be sufficiently inclined downward so that the phlegm, edema, etc., can easily run out through the nostrils, and its arms must be outstretched and hanging backward and downward sufficiently to hold the pectoral muscles in the greatest tension, bringing the chest into the maximal position of inspiration. The operator now lays his right hand, with fingers extended, down over the child's breast and abdomen, so the tip of the middle finger rests on the throat, the index and the ring finger on the subclavicular regions, and the thumb and little finger in the armpits. By pressing with the fingers of the right hand on the chest and with the palm on the abdomen, artificial expiration is induced, followed, as soon as the pressure is removed, by an automatic inspiratory movement, which is caused solely by the above described wide-open, over-hanging position. If the operator now continues in right *tempo* (preferably too slowly than too rapidly) to alternate with the pressure and non pressure of the hand, he can induce artificial respiration of whatever rapidity or depth required.

The frothy substance, often bloody phlegm, etc., which will escape from the child's nose, can be removed as it appears, or one can leave it to itself, because the position the child occupies, with head downward, prevents these secretions from being drawn into the windpipe.

Between the breathing movements, I am accustomed to try to stimulate the tone of the heart by means of delicate percussions on the precordial region in rhythm with the heart beats, which are most easily made by means of the middle and and ring fingers, without otherwise changing the position of the right hand. There is a similar movement employed in Swedish medical gymnastics to great advantage in cases of heart failure, a movement which has proven its mechanically reflective influence on the action of the heart, which becomes stronger, also slower, or more rapid, according to the *tempo* of the movement.

The position of the child is now and then changed to an upright one, partly to empty the bronchi, which has not become drained by the child's downward position, and partly to relieve the auriculi of the heart, at which time, if it seems advisable, the operator dips the child into the bathtub beside him, into the hot water, and then cold water is sprinkled on its breast, etc.

In employing this method the position of the physician is so comfortable that he can continue the operation uninterruptedly for more than two hours, which should be, according to authorities, the shortest length of time generally to devote in efforts for resuscitation of the infant before hope is abandoned. During the process the child undergoes a drainage of most of the respiratory tubes. All necessary manipulations can easily be made, and at the same time the parents or friends are not distressed by methods that seem cruel, such as the swinging of the child in the air, the holding of it by the feet head downward, etc.

For subcutaneous injections as stimulants to the heart action of the new-born child, alcohol, ether and oil of camphor, have been recommended. I prefer the physiologic (or even stronger, 0.6 to 2 per cent.) salt solution, from a few drops to one-half c. cm. at a time. Equally good is perhaps an injection of nitroglycerin, recommended by Dr. J. R. Scott of Clay Center, Kansas, in the *Western Medical Journal* for March, 1897.

This is about the rule he follows: Take a tablet of 1-100 m., put it into a syringe which holds 60 m., expell one-half of the solution and fill the syringe again with water. Of this solution he used 5 m., which equaled 1-2400 of the drug.

I have never made use of nitroglycerin injections, either in adults or children. On the other hand, I have often used injections of salt solutions and always with instantaneous effect.

Every time the above described method of treatment by artificial respiration, heart percussion and use of water of different temperatures has been employed the result was a happy one, with a single exception, where even Schultze's swinging was added, and all treatment failed.—*Times and Register*, Jan. 29, 1898.

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SATURDAY, MARCH 12, 1898.

THE RELATION OF GLYCOSURIA TO DIABETES.

In the midst of the very conflicting statements which have been made by physicians and physiologists in regard to the etiology and pathology of this disease, the increasing frequency of which we have already called attention to in the JOURNAL, it may not be out of place to call attention to some of the facts which are known to exist in regard to the pathology of this malady. It is but a few years since we have been taught that the constant presence of albumin in the urine was a pathognomonic sign of parenchymatous nephritis, and indeed the temporary presence of albuminuria from time to time was thought to possess equal significance. Now we know that albuminuria in itself is not a pathognomonic indication of a renal lesion of a serious character, however indicative it may be of nephritic changes. So, too, some years ago it was generally considered that the presence of sugar in the urine was an indication of diabetes mellitus, but today those who know most about this condition recognize two states: one that of glycosuria; the other, true diabetes mellitus. In the former the presence of sugar in the urine is due to the excessive ingestion of carbohydrates or sugars; in the other the moderate ingestion of those foodstuffs are, to the individual who has diabetic tendencies, excessive, even though the quantities actually taken up are small, for while one individual may be able to assimilate large quantities of carbohydrate material, another individual fails to utilize even a smaller quantity of such substances; and while individuals who readily develop glycosuria when their powers of assimilation are slightly strained, may be considered as having a tendency to diabetes, they certainly can not be considered as diabetics. They are simply leaky vessels unable to contain all the carbohydrate material which they ingest. That glycosuria can be produced experimentally in any individual by the ingestion of sugar has been proved by a number of investigations. Recently LINOISSIER and ROQUE have recorded, in *L'Union Médicale*, experiments which they have carried out upon nineteen persons in good health or with disorders of the digestive apparatus. They gave to these patients cane sugar, glucose and lactose in varying quantities, but always in large amounts, so much as to indicate that the resultant glycosuria was a true overflow or an effort upon the part of the economy to get rid of material which it could not utilize. In 29 per cent. of the cases 750 grains of cane sugar produced saccharinuria, and in all of the cases glycosuria ensued when as much as 5,200 grains were administered. As a result of their studies they conclude, as have a number of others before them, that for each person and for each sugar there is an individual co-efficient of utilization, and they have pointed out the fact that as the ingestion of comparatively small quantities of sugar may be followed by glycosuria we should be cautious in making a diagnosis of pathologic glycosuria until we are sure that the sugar in the urine is not an evidence of what might be called overflow. In the *Berliner Klinische Wochenschrift*, for November, 1896, STRUEMPELL, it will be remembered, made a contribution to the study of dietetic glycosuria in which he points out that if the amount of carbohydrate food is sufficiently great, and oxidation processes are imperfect, this failure in oxidation will result in sugar appearing in the urine, and in chronic alcoholics particularly those who drink an excessive quantity of beer, he found that this dietetic glycosuria was readily produced. It is evident, therefore, that we must have in association with glucose in the urine the characteristic symptom group of true diabetes mellitus before we can make a diagnosis of this disease. There must be a tendency to loss of weight, showing that the overflow is in reality a leak. There must be excessive thirst, itching of the skin, excessive hunger, indicating that there is an attempt on the part of the system to make up for the leak, and a tendency to polyuria before the physician has a right to make a definite diagnosis that the patient is suffering from diabetes mellitus. In other words, the presence of sugar in the urine does not indicate diabetes mellitus with its resulting pathologic changes throughout the body, is not a condition requiring so grave a prognosis and is one which simply requires watching by the physician, and avoidance on the part of the patient of excessive quantities of those foodstuffs which the glycosuria indicates he can not readily deal with.

Recently a writer in one of the medical journals of the Atlantic coast, endeavored to prove, first, that glycosuria is pathognomonic of diabetes, and second, that glycosuria would inevitably follow the taking of glucose into the stomach, since under these circumstances it would be absorbed directly into the general circulation without passing to the liver and as a result the patient would become diabetic. Such a woful ignorance of the distribution of the portal vein and of the fact that substances absorbed from the stomach go to the liver through the portal vein in the same manner as do substances absorbed from the intestine, seems to us inexplicable, and the assertion that the entrance of sugar into the stomach would result in diabetes because of its direct absorption, if true, would render most of the population of the United States sufferers from this disease; for, by this theory the conversion of starch into sugar will always result in diabetes, or at least in glycosuria, unless this conversion takes place in the small intestine. Such statements made by one who pretends to a knowledge of the physiology of digestion and assimilation in connection with the carbohydrates would not be worthy of attention were it not that they were presented to the medical profession in a journal of high repute and may serve to befog the minds of those who without careful thought accept views as stated by a writer without carefully analysing the physiologic and anatomic basis for his dogmatic assertions.

SUBPERIOSTEAL HEMATOMA IN RICKETS.

Under this name, and under the name of Möller-Barlow's disease, a condition has been described in which a hemorrhagic effusion takes place under the periosteum, which is quite rare, but nevertheless interesting. Six cases of this rare disease have recently been recorded by Brun and Renault, of Paris, in *La Presse Médicale*, Jan. 12, 1898. These six cases were observed in the Hospital for Children's Diseases during the past two years. The first case was that of a girl of three months. The father and mother were healthy, but a younger brother had died in convulsions. The child was born at term after a normal labor and had been nursed for six months. It was brought to the Hospital because of the swelling of the right thigh. The general appearance of the child was good. The fontanelle, however, was wide open, but there was no cranial tabes, no thoracic deformity and the belly was not particularly bulging; perspiration was, however, abundant and the skin pale. The liver and spleen were not hypertrophied nor were there any signs of syphilis. The right thigh was greatly increased in size, the swelling being that of a large orange surrounding the femur and commencing just above the knee. The tumor was hard, but the subcutaneous tissues were movable. The skin had its normal color. There was no crepitation. Palpitation of the femur did not reveal much pain. There were no lesions of the gums, no cutaneous hemorrhages and no ocular symptoms, nor was there any fever. The child did not suffer from either constipation, vomiting or diarrhea and the lungs were clear. In the absence of joint phenomena it was evident that the case was not one of osteomyelitis, and fracture was readily excluded by the absence of crepitation and abnormal mobility and by the size of the tumor. Syphilis and osteosarcoma were also excluded. Brun and Renault also decided on a preliminary puncture and then found that the contents of the tumor was pure blood. The child was placed upon antisyphilitic treatment, without result, and shortly afterward suffered from measles, but recovered from the acute attack only to succumb to a bronchopneumonia.

At the autopsy the ordinary lesions of rickets were discovered and the right femur was found surrounded by a considerable effusion and was enlarged with a somewhat spongy material.

The second presented symptoms very similar in character. It occurred in a child of ten months.

The third case occurred in a child of twenty-eight months. The swelling was found in the left thigh, which was also painful. There was, however, no vomiting, nor diarrhea. The general condition was pretty good, although the skin was pale and the belly was enlarged. There were no subcutaneous hemorrhages. There were, however, other evidences of rickets which were quite marked, such as deformity of the long bones.

The other cases occurred in children aged fifteen months and two years. In one of them an examination by means of the radioscope failed to show any distinct abnormality about the femur, although it was practically impossible to keep the child quiet long enough for a proper radiographic picture to be taken.

In the sixth case, also that of a child of two years, a successful radiographic picture presented a femur apparently perfectly normal, without any deformity or fracture, the X rays passing readily through the effusion. For this reason the radiographic picture was without result.

These cases are, we think, of interest in that they might so readily mislead one into the view that there had been a traumatism, or that an osteomyelitis was developing; or again, that an osteosarcoma or a osteotuberculosis was present. Even advanced syphilitic disease might be thought to be the cause of the lesion. It is only when we remember the studies which have been made by Möller, by Barlow and by Cheadle, who so well describe acute rickets manifesting itself in hemorrhagic tendencies, and scorbutus in infants, that such cases would appear to us to be not due to a grave cause, but to a diathetic condition generally known as rhachitis. The sudden onset of the malady might often mislead us into the belief that there had been severe traumatism. As pointed out by Barlow and others, it is entirely possible for the periosteal hemorrhage to occur in other parts than the surfaces of the long bones, and in **Möller**'s cases it occurred in the neighborhood of the orbit. The subperiosteal effusion gave the appearance of great swelling and ecchymosis of the forehead.

Hirschprung, who has seen ten cases, found the lesions distributed as follows: On one femur in three cases; on both tibias in two cases; on the left tibia and right humerus, one case; on both tibias and one humerus, one case; on the right scapula, left femur and right tibia, one case; on both tibias and both forearms and extremities, one case; on the right humerus and right forearm in one case.

In the paper by **Brun** and **Renault**, which we have quoted, the hemorrhage occurred five times in the femur and once in the humerus. It is a noteworthy fact that these subperiosteal hemorrhages are not usually accompanied by hemorrhages into other organs, but such hemorrhages may occur. In four of **Hirschprung**'s cases there were swelling and redness of the gums, but no ecchymosis, and in the six cases reported by **Brun** and **Renault** there were no lesions of the gums. Fever in such cases is usually very moderate and a cure usually results. Pain is also not severe. As the swelling is absorbed the movements of the limb becomes more easily performed and finally recovery takes place. Death is usually very rare, unless there be in association with the attack general purpura, albuminuria or bronchopneumonia.

From a study of their six cases **Brun** and **Renault** conclude that the disease is a different one from that which is usually considered as scorbutus or acute rickets. The chief and typic symptom is the subperiosteal hematoma, which is without the accompaniment of other symptoms. The hematoma appears without there being any fracture, complete or incomplete, to the bone, although in rare instances some traumatism may be responsible for it.

Predisposing influences, such as a tendency to hemorrhagic diathesis, or scorbutus, may, of course, lead to the development of such hematomata.

SOME PUZZLING FACTS OF IMMUNITY.

Our knowledge of the causes of disease has unquestionably been greatly enlarged by the bacteriologic investigations of the past fifteen or twenty years, and we are constantly acquiring new information that is of the highest theoretical and practical importance. With the positive data, however, thus gained, there are others the signification of which is a puzzling problem, and that sometimes appear to contradict or overthrow the conclusions deduced from what have appeared to be well established pathologic acquisitions. Thus we find that even the more virulent pathogenic microbes do not always behave in the same way and there still remains a certain degree of indefiniteness in our knowledge of the behavior of any germ disease analogous to if not quite as extensive as that which formerly existed when bacteria were unknown and the causes of contagious and infectious diseases were yet an unsolved mystery. The natural history of these lowest forms of plant life has not been by any means thoroughly worked out, and as pathologists we are perhaps not exactly on the right road to this result. We do not study them as naturalists; our aim is to follow them in their pathologic relations to learn to use their microscopic characters and behavior in cultures for diagnostic purposes, and we do not apply to these investigations the critical observation of the systematic naturalist who studies the life history and development with a taxonomonic skill derived from long experience and sharpened by competition and criticism. The specific characters of a simple rod or dot of matter visible only under a high-powered lens are not very marked or numerous, nor are they very adequately supplemented by their behavior to coloring reagents or in coloring cultures. These facts leave us in a certain condition of uncertainty in regard to many often mooted points and there are at least a few so-called pathogenic bacteria that tried by the ordinary laws of evidence might escape on the ground of a reasonable doubt from conviction for the homicides of which they are accused, and for which according to accepted pathologic usage they are considered entirely responsible.

The bio-chemistry of the products of these organisms is also rich in puzzling problems and the whole subject of immunity is a riddle the solution of which seems still very far in the future, if indeed it is ever to be satisfactorily solved. No generally applicable and satisfactory law of immunity has yet been formulated, or at least the exceptions are too numerous to exactly prove the rule. In a general way we may say perhaps that custom and familiarity with organic or infective toxins seem to breed a pathologic contempt, but this is only partially true. Why scarlatina for example, which was reckoned as a trivial affection in **Sydenham**'s time, should still exist now for years at a time one of the most fatal of children's maladies and then again apparently and without reason taking on a milder type, while always with us in one form or the other, is not very clear, and other similar instances might easily be adduced. We know as little the laws that govern this apparently capricious behavior of pathogenic organisms in the human subject as we know the reasons why certain other warm blooded animals are habitually immune to their maleficent action, so fatal often to our own species.

One of the most striking examples of apparent immunity to an especially virulent pathogenic microbe has been lately reported by two Italian observers, **Montesano** and **Montessori**, in the *Centralblatt f. Bacteriologie* of December 22, last. They were studying the bacteriologic contents of the cerebro-rachidian fluid, and made the surprising discovery of the existence of NICOLAIER's tetanus bacillus in the fluid drawn by lumbar puncture from a paretic dement in the later stages of paresis. According to the report given, the puncture was made with due antiseptic and aseptic precautions, and the immediate injection into a guinea pig of the derived fluid caused death from tetanus in five days. Similar results followed injections from pure and mixed cultures from the fluid.

In order to test the observation, a second lumbar puncture was made four weeks after the first one and the same results were obtained. After the patient's death, which occurred in the natural course of his disorder some weeks later, postmortem cultures of the cerebro-spinal fluid made by MINGAZZINI revealed the same organisms as did the punctures during life, non-virulent streptococci and tetanus bacilli, together with another form supposed to be *bacillus oleaceus*.

This observation, which we are not justified in discrediting *a priori*, almost completely overturns our generally accepted notions as to the pathogenic virulence of the tetanus bacillus. If an organism that, elaborating its toxin in a distant peripheral wound, can poison the whole central nervous system and render it directly toxic to other individuals, can live and flourish in the cerebro-spinal fluid itself, without apparent injury to its host but still preserving all its virulence for control experiments, we shall have to remodel some of our ideas as to its invariably pathogenic qualities to a very considerable extent. Is it possible to suppose that there is a rival toxin in paresis that immunizes the paretic to that of NICOLAIER's bacillus? The Italian investigators suggest that the existence of this organism in their patient may have had some connection with the congestive and epileptic attacks, but this seems on the whole a somewhat gratuitous assumption, as the case does not appear to have been especially remarkable in this respect. The cerebro-spinal fluid appears to have furnished here a specially favorable culture medium, with conditions as regards temperature, association with other organisms, etc., altogether suitable to the development of the pathogenic peculiarities of the germ and yet the patient, so far as could be shown, was not materially worse for their presence.

The report, as far as it goes, adds another puzzling fact to the literature of immunity, and one that is not quite as readily disposed of or accounted for as some others of its kind. To the well known facts that men can exist in apparent health with diphtheria bacilli in their throats, pneumococci in the blood, tubercle bacilli constantly in the lungs and digestive tracts, and other pathogenic species distributed throughout the organism, we have now to add, according to this latest evidence, that under certain conditions they can also carry the tetanus bacillus and toxins in their nerve centers, without there producing their characteristic lethal effects. The conclusion from all the data is that immunity is elastic, that we have by no means yet learned its limits and that in the whole subject of poisoning by bacteria and their products there are likely to be revealed many things as yet not dreamed of in our philosophy. To accept this as true does not in any way detract from the importance and value of the genuine acquisition to our knowledge of the pathologic relation of these organisms. The facts of infection and its possibilities and of the means of preventing them are too well established to be overthrown. But it may be that in these anomalous discoveries and observations we may find something yet that will reveal new methods of protection against even those agencies that seem at present most formidable.

SURGERY AS A SPECIALTY.

At present there is a delusive kind of fascination in making surgery a special study. Most of the recent graduates aspire to eminence in this field. The apparent certainty of diagnoses, treatment and results seem so clear and tangible, that the practice is sought for as the shortest road to fame and fortune. In a graduating class of one hundred and forty, sixty expressed their intention of pursuing surgery as a specialty. It is the common observation that among the large number of well trained surgeons, who are also teachers in large cities, few ever attain more than a narrow local reputation. Fewer still ever do any original work, or advance the boundaries of the known. Our readers will recall many very active surgeons who have an immense experience and practice, who have never published a new fact or new method of procedure. They will also recall a number of volumes which are absolutely without any new facts, and in some cases are weaker and more feeble statements of truths already well known. It was a source of wonderment to many persons that a most accomplished surgeon and teacher never contributed a single new fact to surgery, although he wrote well and voluminously. The literal explanation is that surgeons are born not made, and no amount of training and experience can make one who will do original advanced work unless he has some natural fitness for it.

Modern surgery calls more and more for first-class mechanical talent; it calls for natural machinists with a strong mathematical brain, full of resources and capable of using the present means to the fullest extent. Such men are resourceful, inventive and reasoning; their observation and judgment are clear and independent. Every great surgeon would have made a leading mechanic or inventor, or great business operator, and every great surgeon is original in his work although it may be confined to small details. The mere mechanics of surgery may be acquired in a degree by nearly every one, but a knowledge of the higher mechanics of the chemico-physiologic work of the organism can only be understood by a natural born inventor and mechanic. The dexterity of operating is not comparable with the reason and judgment of when and how to do it. A noted New York surgeon while riding in the country broke a wheel of his carriage; he soon repaired it with such skill that he was able to continue on his journey as if nothing had happened. Another surgeon broke his carriage in the same way and left it, continuing his journey in another vehicle. One had the mechanic sense developed, the other was without it.

Every physician should be able to act in emergency cases, but the man who aspires to be a specialist in this field should have strongly marked inventive genius. This specialty is a very poor field of practice to one who is not especially adapted for it.

Unfortunately in medicine, as in other professions, there are many ill trained and ill adapted persons for the work required, but the aspirant for surgical honors without natural mechanical and surgical capacity, is literally more unfortunate than others.

CORRESPONDENCE.

The Free Medical and Surgical Treatment of the Well-to-do in Michigan University.

ANN ARBOR, MICH , March 2, 1898.

To the Editor:—I do not know what authority you have for the editorial that appeared in your issue of February 26, under the above heading. This editorial contains some truth mixed with much error, and you will please allow me to separate the truth from the error. You state: "Since their establishment, the Clinic and University Hospital at Ann Arbor have, as a rule, treated all who applied. Occasionally a particular professor would object to treating a notoriously rich person, but no rule has been adopted. Moved, doubtless, by the protests of the profession and their own sense of equity, the medical faculty requested the Board of Regents, at a late meeting, to exclude all well-to do people seeking admission to the university hospital. The Board has the matter under consideration. It is reported in the public press that the majority are opposed to such exclusion of the rich. They hold that the hospital is for teaching students of the Medical Department, and that a millionaire makes just as good a subject for teaching as a pauper; that he pays taxes to the support of the hospital, and so has a right to the free services of the university hospital staff."

The truth of the matter is that in 1883 the Board of Regents adopted a by-law authorizing the faculty to exclude from the hospital and clinic all patients who were able to pay for medical services. I have no doubt that some people have imposed upon the faculty, but this rule has been adhered to as closely as possible and is still in force today. A few months ago, a man known to have a sufficiency of this world's goods to enable him to pay a fair doctor's bill, applied for admission to the hospital. In accordance with the rule already mentioned, he was refused admission. He appealed to the Board of Regents on the ground that he was a tax-payer and helped to support the University and the hospital. The Board of Regents ignored his appeal and refused to make any change in the rule adopted in 1883 and in effect since that time.

In the editorial you speak of a doctor living in western Michigan who for years has been able to keep his cases of cataract only by figuring out the railway fare to and from Ann Arbor and the cost of two weeks board at three dollars per week, and by offering to do the operation for the resulting sum. Please allow me, through your columns, to inform this physician that he can increase his price. The cheapest board in university hospital is $5 per week, and when the individual occupies a room alone, the charge is $9 per week. I am sorry that this physician has been losing, as a result of his figuring out the cost of an operation at the University. Furthermore, if any doctor in the State of Michigan will inform the medical faculty that any individual coming to the hospital is able to pay a reasonable fee for the operation to be performed, such applicant will be refused admission to the hospital. Of course, it is quite impossible for the medical faculty to always ascertain the financial standing of patients applying for admission, but both the faculty and the regents have always endeavored, and I think that I may say always will endeavor, to act for the best interests of the medical profession. It would be very unwise for the Board of Regents to educate and graduate physicians and then take from them the means by which they are to make their living. Respectfully,

V. C. VAUGHAN, M.D., *Dean.*

"Oxytuberculin."

SAN FRANCISCO, CAL., Feb. 24, 1898.

To the Editor:—In the JOURNAL of February 5 (p. 336) it is noted that the Audiffred Prize of 100,000 francs for the cure of consumption was not granted to me by the French Academy of Medicine on account of not being sufficiently established by experiments upon animals. I was very much surprised to find my name mentioned in this connection at all, as I had neither applied for a prize, nor did I know of its existence. My work, together, with an official translation, had been presented by the minister of foreign affairs to the Academy and to the Pasteur Institute of Paris for investigation, and it is pleasant to me that it was favorably commented upon by the Academy.

It was and is my desire that the doctrine of the curative effect of oxidized toxins should be most skeptically investigated in order that its truth should be established by others as it has been by me. As stated in the presentation to Cooper Medical College (published in the JOURNAL of February 5), I had not entered at all upon the field of animal experimentation, but had limited my work entirely to the clinical and bacteriologic sphere, in both of which the evidence was indubitable. In the JOURNAL of February 19 a Dr. Smith criticises the evidence presented in rather an acrimonious manner. His feeling toward Cooper Medical College may be explained by the fact that he has had an unpleasant correspondence with another member of the faculty, which assumed such a character that Dr. Smith's last letter to the gentleman was returned to him unopened. I am not acquainted with Dr. Smith, who lives in a small village some fifty miles from here, and he certainly knows nothing whatever about my cases. He has had some unpleasantness with a medical gentleman, who is using oxytuberculin with most excellent success, in Santa Clara.

With regard to the cases of cured and improved tuberculosis as stated in my published lecture, I have reported a large number that had been examined before, during and after treatment by various medical men, and the sputum slides were presented in evidence before the investigating committee, who likewise examined my culture experiments in the laboratory from time to time. The hygienic condition of the patients treated were absolutely unchanged, nor were other remedial agencies employed. A number of the cases were treated at our City and

County Hospital, where the conditions are notably unfavorable; so bad, indeed, that the city will shortly be compelled to tear down the buildings and erect new ones. The patients are kept on the poorest possible diet, thirteen cents per day being allowed for feeding. These cases (among them the cured miliary tuberculosis reported), have been watched by physicians and students, so that there can be no doubt of the facts.

I am sorry that any personal feeling should actuate discussion upon so serious a subject as a cure for tuberculosis, for there should be no mud-throwing in the temple of science.

It gives me pleasure to state that a large number of medical men throughout the United States have confirmed my favorable statements, in spite of the fact that most of the cases reported have been far advanced. I have distinctly stated that I made claims for the curative action of oxytuberculin only in the early stages of tuberculosis, where it will certainly be found to be a specific. Respectfully,

433 Geary Street. J. O. Hirschfelder, M.D.

Appendicitis.

New York City, March 1, 1898.

To the Editor:—I will undertake to refute the arguments of any correspondents who maintain that we should not make it a rule to operate upon cases of appendicitis as soon as the diagnosis is made. The matter is one of grave importance because the deaths from appendicitis in the United States alone have been estimated, from safe data, to amount to more than fifty thousand annually. Physicians carry into practice the ideas which they believe to be right, and patients are practically helpless in the matter because they must abide by the decisions of the physicians in whom they have placed confidence. Some physicians are wrong; some are right. The ones who are wrong treat as many patients as the ones who are right. Patients do not know the difference and they do not realize that deaths from appendicitis are usually unnecessary deaths. Most of the physicians who are in the wrong on appendicitis questions are more than willing to be set right, but they are apt to become confused unless they are surrounded by an environment which allows them to take judicial positions, instead of the positions of advocates.

I will be brief in my part of discussions, and correspondents can state their points briefly, so that not much space will be required in the Journal. The editor can finally sum up the evidence and can render an important decision upon the subject which directly involves the lives of thousands of individuals.

My proposition is that we must make it a rule to subject our appendicitis patients to operation as soon as a diagnosis has been made. The reasons for my proposition are:

1. No physician will ever be able to prejudicate upon the extent of bacterial ravages in any given case of appendicitis.

2. If we wait to see whether a mild case is to remain a mild case, the cases that are not mild become complicated cases before operation is done and we then have an unnecessary death rate, an unnecessary suffering rate, an unnecessary loss of time rate.

3. Operations properly performed at the outset of infective appendicitis have a smaller loss of time rate, a smaller suffering rate and a smaller death rate than can be given by any sort of medical treatment.

4. Operations performed properly by the surgeon when bacteria are causing progressive destruction of tissues outside of the appendix, are less dangerous than the operations that the bacteria perform.

5. Operations performed properly when patients are apparently convalescing from acute appendicitis, avoid the surprises that appear in the form of infective phlebitis, portal embolism and other metastatic complications which are so often observed by those of us who are engaged in appendicitis work.

6. Operations performed properly, in the interval between attacks of appendicitis, give results similar to those performed in the early infection stage.

I believe that it will be an easy matter to refute any arguments to the contrary of my proposition, but I would like very much to have the matter discussed very promptly because patients are hourly dying unnecessarily from appendicitis, and and it is high time that a preventable death rate be prevented.

49 West Thirty-ninth St. Robert T. Morris, M.D.

Staphylococcus Infection Not Tuberculosis.

Oconomowoc, Wis., Feb. 28, 1898.

To the Editor:—Miss B. applied for treatment at Sanatorium Waldheim, Nov. 21, 1897, on account of a hacking cough, bloody expectoration, general emaciation and night sweats. The patient is single, a servant, 21 years of age. Both parents are dead; father died of tuberculosis; cause of mother's death unknown. Patient says she has always been well up to May, 1897, when she took a severe cold, causing a cough which lasted through the summer and increased toward autumn. She weighs 104 pounds, is anemic, cheeks slightly flushed and gives the impression of one in the second stage of tuberculosis. She coughs mostly toward night, expectorates (with difficulty) a small amount of blood-stained sputum and often vomits after a severe attack of coughing. She has anorexia, night sweats, and does not sleep well. Expansion of chest is fair, with slight dulness over both apices, harsh breathing and some hoarseness. Pulse 100 and an evening temperature of 100 to 101 degrees. I had not much doubt that the case was one of tuberculosis and that tubercle bacilli would be found in the sputum.

A tonic mixture of muriatic acid, quinin, etc., was prescribed to create an appetite and improve digestion, cold packs ordered to be given late in the afternoon daily and the diet was strictly attended to, but the patient's condition, especially the cough, grew rather worse during the first week. In the meantime Dr. Folsom made several microscopic examinations of the sputum without finding any tubercle bacilli, only staphylococci and a few other bacteria being found. A larger quantity of sputum was now collected and centrifuged, after which we obtained several slides of almost a pure culture of staphylococci in endless numbers, but not tubercle bacilli. The cold packs, a yet more nourishing and substantial diet, and the tonic mixture were continued, and in addition, general massage and moderate exercise ordered. There was given besides this, alternate inhalations of a 1 per cent. solution of argenti lactas and a 5 per cent. solution of guaiacol; the first solution a. m. and the last p. m., for five minutes by means of a multiple comminutor (in my mind the only inhaler which is efficacious). Soon the improvement in the condition of the patient was apparent. At the end of the second week she had very little evening temperature, had a better appetite, complained much less and had gained three pounds in weight.

The improvement continued uninterrupted until the end of the fourth week when she was discharged practically well. Had no cough nor expectoration, natural respiratory murmur, no temperature, a normal pulse and general feeling of well being. Her weight when discharged was 114 pounds. She has reported a few times since, always being well and gaining in weight, weighing now over 120 pounds.

I wish to put this case on record as an example of the importance of a microscopic examination of the sputum of such patients. It is quite possible, had the ulcerative bronchitis and staphylococcus infection not been detected, that this patient would have eventually, and probably during the winter, succumbed, with or without an additional infection of the tubercle bacillus, which later would have found a properly prepared soil for its implantation. J. H. Voje, M.D.

The Manufacture of Antitoxins.

CHICAGO, ILL., March 2, 1898.

To the Editor:—I have just read the paragraph entitled "The New York City Board of Health" that appeared on page 506 of your issue of February 26.

Permit me to point out that ever since January, 1895, diphtheria antitoxin . . . could have been purchased in New York City at a cost never exceeding $2 per vial of 10 c.c., representing 1500 units, or approximately $6 per ounce. The pretension, therefore, of the Board of Health, that the cost of diphtheria antitoxin at the drug store was $12 per ounce, and therefore excessive, is absolutely without foundation. Please note that diphtheria antitoxin . . . is recognized all over the country as a standard product. Practically none has been sold for consumption in New York City itself owing to the competition of the Board of Health. But that does not alter the fact that our diphtheria antitoxin has always been obtainable in New York City at the price named, and in fresh and serviceable condition. The New York City Board of Health must be in a very precarious condition to resort to such unfortunate misstatements in its attempt to retain its power to manufacture medicinal or other preparations in competition with private parties. I do not believe that the spirit of paternalism which now pervades certain public bodies is a correct echo of public sentiment, and appearances indicate that it will be nipped in the bud. A sign of the times is the reduction by the Senate, to $25,000, of the appropriation of $100,000 applied for by the Department of Agriculture for the manufacture and supply of hog cholera vaccine, the reduced appropriation being made with the stipulation that the serum manufactured should be utilized exclusively for official experiments, and none of it should be gratuitously distributed. We enclose herewith copy of an extract taken from the *Oil, Paint and Drug Reporter* of New York City, which may possibly be of interest to you.

Yours very truly, HAROLD SORBY,
Manager Pasteur Vaccine Co.

THE SENATE DISAPPROVES THE DISTRIBUTION OF SERUM.

Readers of the *Reporter* will be pleased to learn that the strong protests made by the manufacturers of pharmaceutic preparations and others against the proposition of the Secretary of Agriculture to spend $100,000 in the manufacture and gratuitous distribution of 2,000,000 doses of hog serum has been disapproved by the Senate. Unless the House fails to agree with the Senate's action, which is not likely, this effort at paternalism will come to naught.

The Secretary of Agriculture has been making a series of experiments through the Bureau of Animal Industry which has resulted in demonstrating to the satisfaction of the experts that a serum can be produced which is very effective against hog cholera. The Bureau officials became so enthusiastic over the results achieved that they induced the Secretary to appear before the Senate Committee on Appropriations, and request an appropriation of $100,000 for the manufacture of serum to be gratuitously distributed through the medium of the agricultural experiment stations and colleges. The editorial comment upon this action which appeared in the *Reporter* last week greatly stimulated protests against this action, and such a flood of remonstrances reached the chairman of the committee and his colleagues in the Senate as to convince the framers of the agricultural appropriation bill that public sentiment was strongly opposed to the Secretary's project. After several conferences Senator Allison, who is chairman of the Appropriation Committee, decided to reduce the sum requested by the Secretary to $25,000, and to concede it only with the distinct understanding that but a limited quantity of the serum should be manufactured and that it should be utilized exclusively for official experiments and none of it should be gratuitously distributed.

The officials of the Bureau of Animal Industry are greatly disappointed at the failure of their plan to distribute the serum widely, but Senator Allison is confident that the real function of the Bureau, which is to determine by experiment the efficacy of remedies for animal diseases, will not be circumscribed as the result of the reduction, while at the same time the Department will be relieved of the criticisms which have been directed against a proposed invasion of a legitimate field of private enterprise.

The victory of the trade is of far greater significance than the mere prevention of the gratuitous distribution of hog serum. It is in effect a recognition on the part of the Senate of the impropriety of the Government's entering into competition with private firms in any line of industry, and there is no doubt that the precedent thus established will be of great value to the business community hereafter.—(From *Oil, Paint and Drug Reporter*, Feb. 14, 1898.)

Opinions Differ.

MINNEAPOLIS, MINN., Feb. 21, 1898.

To the Editor:—I notice in the JOURNAL of January 15 what I consider a very unfair criticism of the excellent work on surgical diagnosis and treatment by J. W. MacDonald, M.D.

1. The reviewer states that "the book might be compressed into two-thirds its size" and that "the author has lost the art of condensation." In the face of the fact that the author is a speaker and a writer of rare ability both on medical and other subjects, the statement raises a question in the mind of the reader as to whether the assertion is not biased by selfish motives.

2. That "it is foggy in regard to tumors." If there is any fog about tumors it must exist in the mind of the reviewer, as many able authors entertain the same views as set forth in this work.

3. That "gas and the electric headlight has superseded the student's lamp as a means of examining the larynx." The idea of the student's lamp may appear ridiculous to a resident of Chicago but there are doctors outside of the Windy City who are not prejudiced by the lantern and cow who are where electricity and gas are not obtainable.

4. The typographic error on page 579 in regard to the word Adams is admitted. The author is not the only one suffering from a "deviated" letter, as I notice the reviewer has a new way of spelling W. B. Saunders.

A MEMBER OF THE ASSOCIATION.

A Prescription Corrected.

PHILADELPHIA, PA., March 3, 1898.

To the Editor:—By an inadvertency an error has found its way into the report of my clinical lecture published in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION for Feb. 26, 1898. On page 464, in the second column, the second prescription should read as follows:

℞ Pepsini glyceriti . . . . ℥v. 147 85
Acidi hydrochlorici diluti. . . . . . . m. cc. 12 32
Sig.—Two teaspoonfuls after each meal.

In reading the proof furnished me that portion which contained the above prescription was missing. I have been informed by your printer that two galley slips had stuck together and that the prescription, together with the adjoining portion of text was concealed. JOHN V. SHOEMAKER, M.D.

Wants Statistics of Homeopathy.

CHICAGO, March 1, 1898.

To the Editor:—It would be interesting and valuable to know, according to reliable statistics, the number of homeopathic physicians, colleges and hospitals in the United States at the present time as compared to the number ten, twenty and thirty years ago.

If it seems wise to the editor, I think a statement of such statistics would be very generally appreciated.

Very respectfully, R. S. PORTER, M.D.

ASSOCIATION NEWS.

Prospective Attendance at the Denver Meeting.

DENVER, COL., Feb. 28, 1898.

To the Editor:—I send you this communication in the way of a preliminary report relative to the prospective attendance at the forthcoming Denver Meeting, thinking that it may be of interest to the members of the AMERICAN MEDICAL ASSOCIATION. As Chairman of the Local Committee upon State Medical Societies, I have opened a correspondence with the officers of all the State societies with a view to awakening a degree of interest, thereby securing as large and enthusiastic delegations as possible, and to ascertaining in reply an approximate estimate of the probable attendance from each State. The answers thus far received have been, upon the whole, extremely gratifying, and from the assurances contained indicate the development of a decided general interest with a growing spirit of enthusiasm relative to the next annual meeting. The exhibition of this feeling may be reasonably expected to result in a large and representative gathering of medical men in Denver next June. That the meeting will be a brilliant success in point of numbers and character of attendance is already practically assured by the expressions received from all parts of the country. The larger number of replies have been necessarily of a purely general nature. The fact that a majority of the State societies do not hold their annual meetings until April or May renders it impossible for their officers to form any adequate estimate as to the size of the delegations from the respective States. In but few instances have delegates been appointed as yet. Those whose names I have been able to secure have been corresponded with. Some have replied, signifying their intention to come and bring others. Nearly all the officers of the various State societies are taking energetic measures to create an active interest among their fellows, and predict in behalf of their local organizations a generous representation. The names of the many delegates will be furnished me as soon as the appointments have been made, and they will be communicated at once. Thus far general estimates have been received from thirteen States, representing a total of 618. While from the remaining States no official information has been received upon which to base provisional opinions as to the relative size of delegations, still sufficient data of a general nature have been secured to justify the conclusion that the estimate quoted for the thirteen States will be a fair proportionate index of the whole. From this it seems safe to assume that the attendance at the next meeting will equal that of any previous year. If the voluntary expressions of those in authority in the various States may be considered as reflecting to any degree the sentiments of the individual members it is apparent that a strong feeling of interest and hearty enthusiasm is already aroused. Did space permit I would quote brief extracts from the many letters received, evincing the most earnest sympathy and active co-operation. The earnest work undertaken in some of the societies should stimulate all to renewed efforts toward insuring the success of the next annual meeting. Very sincerely yours, S. G. BONNEY, M.D.

NECROLOGY.

THOMAS B. BAILEY, M.D., appointed to the U. S. Navy from New York in 1889, and made a Passed Assistant Surgeon in 1892, died in Washington, D. C., February 24, aged 34 years. He had been on the China Station but was lately ordered home and to duty at the Washington Navy Yard.

WILLIAM S. TORREY, M.D., New York University, 1884, died in Brooklyn, N. Y., after a long illness, in his 36th year, on March 4. His remains were interred at his former home in Honesdale, Pa.

JOHN C. SHERMAN, M.D., in charge of the U. S. Marine Hospital at Ogdensburg, N. Y., died in New York city March 2, aged 48 years.

DEATHS ABROAD.—Dr. Jennie Taylor Gordon, wife of a missionary in Africa and niece of Bishop William Taylor of the M. E. Church, died at Malange Angola, West Africa, December 29. She was known as "Dr. Jennie" in the foreign missions and during her long service abroad acquired an enviable reputation for skill. Her parents are residents of Mechanicsburg, Pa.

JAMES J. STEPHENS, M.D., College of Physicians and Surgeons, New York, 1846, died from apoplexy at his home in Tappan, N. Y., March 3, in his 75th year. He was born in New York city but came to Tappan forty-three years ago and for forty of these he was owner of the Major André prison house, from which he religiously excluded the public. After this structure was blown down in part on November 2 last, the next owner rebuilt it and made its inspection free. Many stories are told of Dr. Stephens' skill and eccentricity.

WILEY H. WILSON, M.D., Lake Geneva, Wis., February 27, of cerebral hemorrhage. He was born at La Grange, Ga., Jan. 6, 1842, and when the war broke out he was a student at the University of Athens, which he left at the age of 19 to join the Southern army in West Virginia, where he served on General Rhodes' staff in Stonewall Jackson's brigade. He was with General Lee at the surrender at Appomattox courthouse. After the war he studied medicine in Louisville, Ky. In 1880 he moved to Chicago, where he practiced his profession five years, and then moved to Lake Geneva.

ROBERT A. WHEATON, M.D., St. Paul, Minn., February 25, aged 30 years. The Doctor was graduated from Harvard in 1889, clinical instructor in surgery at the University of Minnesota, a member of the AMERICAN MEDICAL ASSOCIATION, the Minnesota State Medical Society, Massachusetts Medical Society and Association of Military Surgeons of the National Guard.

THOMAS JEFFERSON MOORE, M.D., Richmond, Va., February 24, aged 58 years. Dr. Moore was a native of North Carolina, served as a member of the Senate of that State, was for four years a member of the Virginia State Medical Examining Board, a member of the AMERICAN MEDICAL ASSOCIATION and honorary member of the North Carolina Medical Society, and filled the chair of clinical medicine in the University College of Medicine at Richmond.

FRANCIS G. HENRY, M.D., Kansas City, Mo., February 26. He was born in Paris, Ky., in 1828, and about 1860 moved to Missouri. He entered the Confederate army and accompanied Price in his first raid. He also served under General Shelby. During Governor Crittenden's administration, Dr. Henry was appointed superintendent of the asylum for criminal insane at Fulton, Mo., he being the first to hold that position.

JOHN PARKER MAYNARD, M.D., Harvard, 1848, of Dedham, Mass., February 26, aged 72 years. He was born in Boston, Mass., was a graduate of Yale and in 1847 the discoverer of collodion, which he soon utilized in surgery.

JOHN YALE, M.D., Yale 1841, died in Beloit, Kan., February 26. He was a descendant of the founder of Yale College and born in New Hartford, Conn., April 2, 1820. Most of his life was passed in Ware, Mass.

SAMUEL AUGDEN HILLS, M.D., Yale 1846, died at his residence in New York city after a long illness, February 26, aged 76 years. During his professional life he was an apothecary, a coroner, lumber merchant and a realty investor, having accumulated considerable wealth.

A. RUSSELL STRACHAN, M.D., died at the St. Cloud Hotel, New York city, March 1, as the result of injuries received a week before in an effort to save a woman and child from being run over by a Broadway cable car. Both were rescued. He however thought but little of his hurt and did not immediately take to his bed. He was born in Scotland, was graduated from the Victoria University, Ontario, 1861, and long ago was connected with Luke's Hospital New York. An obituary note credits him with being the author of various medical works and of many magazine contributions.

CLARENCE LEWIS, M.D., aged 24 years died in San Francisco, Cal., February 20.——W. H. Hill, M.D., South Onandago, N. Y., February 26.——William Coe Holmes, M.D., College of Physicians and Surgeons, New York, 1880, died in Waterbury, Conn., February 24.——Hiram Lake, M.D., Holliston, Mass., ged 79 years.——W. H. Parkhurst, M.D., Dunbar, Neb., February 25.——Frank W. Root, M.D., Kent, Ohio, February 6.——Samuel D. Seelye, M.D., Montgomery, Ala., February 3.——Alexander Fulton, M.D., Philadelphia, March 1, aged 3 years.

PUBLIC HEALTH.

Proposed "Practical" Medical Legislation for New York State.—Legislation intended to build up the profession's "practical nterest" in New York, will not be wanting this year. Free vaccination is to be opposed as inimic to the best (financial) welfare of young medical men. The production of diphtheria antitoxin by official laboratories and its administration free of charge by boards of health, also the attempt officially to repress that "filth disease, pulmonary phthisis," will be legislated against. If the promoters of the "practical interests" bill will also attack the bacterial diagnosis of diphtheria, tuberculosis and typhoid fever in our official laboratories, they will have well done their part toward closing up those branches of work that have hitherto been regarded as objects of congratulation by our more wide-awake boards of health. When New York City began the work which is now proposed to abolish, antitoxin was selling for $12, but in consequence of the Health Board's production it is now sold for $1.50. The city's bacteriologic bureau has attracted attention in Berlin, Vienna, England and Scotland, where its method has been copied, as well as in several American cities. An appropriation of $30,000 a year is made for it by the city, and as much more is realized by the sale of antitoxin and vaccine, which is said to be the purest made in this country. It supplies the city of Chicago. The receipts are applied to the work of the bureau. Last year 9641 visits were made to tuberculous patients, 5000 to disinfect rooms in which patients had died, and 4641 to teach patients not to communicate their disease. There were 968 persons treated with 1400 injections of lymph in 1896, and 1214 were immunized. The number of persons treated last year was 1174, to whom 1600 injections were given and 1714 persons were immunized. Much of this work was done among the poor. If this newly proposed legislation is carried out there must be a very general closing up of important lines of laboratory work. Will the best interests of the medical profession be advanced thereby? One effect we can foresee as possible is that there may be attracted into the medical student class numbers of young men who are looking out for a good "practical" money-making profession; and if this effect shall be produced, some of these legislation promoters may have occasion for sorrow. Is "practical" legislation a two-edged sword?

MISCELLANY.

Carbolized Camphor is strongly recommended for suppurating and inflammatory processes by Ordin, a Russian confrère.—*Cbl. f. Chir.*, November 13.

Surgical Intervention in Perforating Peritonitis from Typhoid Fever.—Monod reports a case in which he performed laparotomy, but the patient died three days later, as the peritonitis continued its ravages. He has had five recover out of thirty-two operated on in these conditions, and considers an operation indicated and justified as a last resort. Routier, Brun and Lejars have each a record of one or two cases thus treated, but none recovered.—*Cbl. f. Chir.*, January 22.

Permeability of the Placenta.—Recent tests with methylene blue to determine the permeability of the placenta, similar to the tests with the kidneys, resulted in the appearance of the blue in the urine of the infant by the end of an hour and a half, as the minimum. The tests were made on sixteen maternity cases three minutes to twenty-two hours before the expulsion of the fetus. The blue could not be detected in the milk nor in the amniotic fluid.—*Progrès Méd.*, January 22.

A Peculiar Case of Abnormal Genitalia is related by E. Tornu in the *Anales del Circ. med. Argentino* for November. The vagina and uterus were rudimentary; the former without an opening, and one ovary was absent. Menstruation was accomplished through the bladder although no communication between it and the genitalia could be discovered. During menstruation there was absolute anuria for three days, even during the corresponding periods when the menses failed to appear, as happened occasionally.

Experimentation with Combined Coli Bacillus and Pyogenic Cocci in the Etiology of Gastro-Intestinal Fever.—A. M. Coco asserts as the results of research in this line: 1. That the coli bacilli become virulent in the presence of the pyogenic strepto- or staphylococcus. 2. The coli bacilli alone produce no thermic elevation or merely a slight and momentary rise in temperature. 3. The simultaneous ingestion of the coli bacilli and the pyogenic staphylococcus determines an appreciable elevation of the temperature and rapid loss of weight. 4. Cultures of the coli bacilli and pyogenic strepto- or staphylococcus ingested simultaneously, established an intense gastro-intestinal catarrh.—*Gazetta d. Osp. e d. Clin.*, January 23.

Non-diphtheritic Laryngitis Fibrinosa.—A case is described by A. Rosenberg in *Therap. Woch.* of December 10, in which a fibrinous growth appears constantly on the larynx, the patient, a man of 67, otherwise in good health. It has persisted a year and a half, in spite of treatment of all kinds. The patches require about a week for their appearance, development and final disappearance, when others appear at other points, all tenaciously adherent, the membrane very much inflamed under and around them. Cicatricial growths in the pharynx indicate old syphilitic infection, denied by the patient.

Recurring Appendicitis.—A review of 346 cases of appendicitis treated in the Bathanien Hospital at Berlin shows that in 65 the affection had returned. It recurred once in 37 cases; twice in 10; three times in 6; four times in 1; five times in 1. The interval between the recurrences was one year in 39; two years in 10; three years in 4; four years in 4; five years in 1; seven to ten years in 2, and eight, nine and eleven years in 1. In 5 cases the relapse led to generalized peritonitis. The usual proportion between sexes was observed: 38 children, 211 male adults and 97 female.—*Cbl. f. Chir.*, January 22.

Surgery of the Stomach for Malignant Neoplasms.—C. A. Ewald reports a mortality of 54 to 69 per cent. in sixty-eight operations, although the operative result was faultless in all but three. He considers gastrostomy a kind of euthanasia, but notwithstanding it must be performed for humane, if for no other reasons. He adds in conclusion, that the prognosis is dubious in every case; it is impossible for the surgeon to know the outcome beforehand, even in the most apparently favorable cases; still surgical intervention should be proposed in all cases that indicate it, and the operation should follow with the least possible delay. Lactic acid is no longer considered a specific symptom of gastric carcinoma, as the palpable neoplasm usually precedes it.—*Cbl. f. Chir.*, January 22.

Death from Inhibition.—Cases are known of sudden death from a very slight blow in certain regions of the body, not severe enough to produce even an ecchymosis. Brown Séquard explains them by inhibition, arresting by reflex action the heart and the circulation, the exact reverse of the co-ordinated phenomena of reflex motor excitation of which the sneeze is the type. Three phenomena are characteristic of death from this cause: The absence of agony, the *extreme silence*, no convulsions or foam on the lips; there is no change in the color of the blood, as in asphyxia, and the temperature falls rapidly. But the expert is seldom summoned until these characteristics have passed away, and such cases are apt to be puzzling. The impressionability varies with the age, sex and morbid circumstances. Children are more subject to death from inhibition than adults, and women than men.—*Jour. de Méd. de Paris*, December 19.

Dissecting Aneurysm of the Heart.—A. Vestberg has collected sixty observations of aneurysm of the heart, corresponding to the conception of dissecting aneurysm of the vessels. In most cases it was consecutive to an endocarditis, abscess or rupture of an ordinary aneurysm. In two, to traumatism. The interparietal form is most common. There is no independent wall at first, but a secondary wall forms later, in chronic cases. Rupture occurred in more than half of the cases, but only once outward. In two cases the valves of the aorta were involved; in two others the septal fold of the tricuspid valve, and in four the anterior mitral fold. His communication in the *Nordiskt Med. Ark.* is copiously illustrated.—January 10.

Resection of Renal Tissue for Diagnostic Purposes.—Macroscopic examination of the kidney is not sufficient in many cases to disclose the true nature of an affection, and conservative treatment is much promoted by supplementing the usual means of diagnosing with the resection of a small piece of the parenchyma. Several convincing observations related by O. Bloch confirm the wisdom of the procedure and its absolute innocuousness. He even asserts that the mere opening up of the kidney, freeing adherences, aspirating fluids, etc., will frequently cure existing troubles, and the resection of a thin slice will confirm the non-malignant character, although to the eye the organ seemed seriously involved and removal urgently indicated. The urine afterward returns to normal with astonishing rapidity. The value to histology of thus obtaining sections of living tissue for study is apparent.—*Nordiskt Méd. Ark.*, January 10; eight cases.

The Infestation of Dwellings by Fleas.—The Department of Agriculture, in a recent entomologic circular of information says that it is the *pulex serraticeps*, not the *pulex irritans*, that is more frequently concerned in the infestation of domiciles. As to the removal of the pest the following advice is given: "Every house where a pet dog or cat is kept may become seriously infested with fleas if the proper conditions of moisture and freedom from disturbance exist. Infestation, however, is not likely to occur if the (bare) floors can be frequently and thoroughly swept. When an outbreak of fleas comes, however, the easiest remedy to apply is a free sprinkling of pyrethrum powder in the infested rooms. This failing, benzine may be tried, a thorough spraying of carpets and floors being undertaken with the exercise of due precaution in seeing that no light or fires are in the house at the time of the application, or for some hours afterward. Finally, if the plague is not thus abated, all floor coverings must be removed and the floors washed with hot soap-sods. This is a useful precaution to take in any house which it is proposed to close for the summer, since even a thorough sweeping may leave behind some few flea eggs from which an all-pervading swarm may develop before the house is reopened."

A Vesicant Acarus.—Meguin (*Bulletin de l'Acad. de Méd.*) dwells on the remarkable disease observed in China among the poor, who eat a kind of purslane or arroche (atriplex). The skin on exposed parts becomes edematous and itches severely. The symptom has been attributed to an acarus which is found on this kind of atriplex. But the parasite has not been actually found in any patient. Meguin, however, believes that the theory about the Chinese disease is correct, for in Mauritius there is an acarus known as *holothyrus coccinella* (Gervais), which abounds in moss in the cold and damp highlands of the island. Poultry can not be reared in those districts, as the acarus causes fatal pharyngitis. Native children suffer in the same manner. Some specimens of holothyrus were sent to Meguin. They were all dead. He fixed them by strapping to his forearm. In a few hours they set up severe irritation, edema and prurigo. The live holothyrus must be a powerful irritant to mucous membranes. It measures under one-fifth of an inch in length.—*British Medical Journal.*

Improved Sutures in Operations for Inguinal Hernia.—Prof. S. Duplay and M. Cazin, both of the Faculty of Medicine at Paris, dispense with buried sutures in the Bassini and other operations for inguinal hernia by using temporary silver wires. The under row of three U-shaped stitches brings the deep tissues together, beneath the spermatic cord. The ends are twisted tight over a roll of gauze. When coaptation is perfect the cord is replaced and seven wires passed through the superficial tissues, reconstituting the anterior wall of the canal, suturing the pillars and closing the cutaneous wound at the same time, with a few additional stitches of the skin if necessary, with very fine wire. The cord has ample space between the two layers of stitches. The superficial threads are removed in seven to eight days. The lower row is not disturbed for twelve to fifteen, and they have been left for eighteen to twenty days without inconvenience. The split ends of the sac are tied together beforehand, to assist in reducing the hernia, by the method described in the JOURNAL (Vol. 27, page 1348). They consider silver wire much better for these operations than catgut, which is absorbed too rapidly to ensure solidity, and their tests with kangaroo tail tendons, showed that they also were absorbed in fifteen days.—*Semaine Méd.*, December 22.

Medical Representation in Congress.—The editor of the *Texas Medical News* would have a better and fuller medical representation at Washington, and to that end nominates Dr. Stanford E. Chaillé of New Orleans for duty in Congress. He says that his nominee's long experience in matters sanitary will be timely in the pending and impending discussions regarding quarantine and national organization, for in order to secure the benefits to be derived from a department of public health for the United States Government and State health boards, legislation is indispensable, and the needed legislation can never be secured unless the medical profession is represented in the United States Congress and State legislatures by able members of the profession. These great reforms can never be accomplished in any other way, and to this end we earnestly suggest, as a beginning, to the people of New Orleans and Louisiana, the name of Stanford E. Chaillé as a suitable member for Congress from the district of his residence. In sending Dr. Chaillé to Congress the people of his district would not only confer a benefit upon themselves, but, in our judgment, upon the entire people of the United States.

Surgical Intervention in Purulent Peritonitis.—Korte has grouped all the cases of generalised peritonitis from internal causes observed since 1890, excluding all traumatic, gangrenous hernia and other cases in which the peritonitis was secondary to general infection. They number ninety-nine. Seventy-one were operated on, with twenty-five recoveries (32.5 per cent.), and forty-six deaths. Twenty-eight were not operated on; six recovered (21.4 per cent.) and twenty-two died. Although these results are modest, still those who recovered would have undoubtedly succumbed without the intervention, which aims to remove the peritoneal exudate, thus preventing the ulterior absorption of the toxins and freeing the intestines, the abnormal walls and especially the diaphragm, from the extreme pressure. The best results were attained in perforations of the appendix (33 per cent. cured). The earlier the operation the brighter the prospects of success. If twenty-four hours have elapsed since perforation of the alimentary canal, the chances are reduced to the minimum. The exudate is diagnosed by percussion, palpation in various positions and rectal and vaginal examination. Exploratory punctures are dangerous and should never be attempted unless prepared to follow immediately with the laparotomy. He notes that as the case advances to a fatal termination the general symptoms overshadow the local, and as long as the latter preponderate, no matter how severe, there is still hope.—*Mitth. a. d. Grenzb. d. Med. u. Chir., ii, 1, 2.*

Sanitation is the Chief Glory of Modern Times.—Dr. L. Parkes of London has lately given a discourse upon the progress of sanitary operations in the last half century. He gave it as his opinion that it is not too much to say that the chief glory of the closing epoch has been the growth of exact knoweldge as to the causes of many of the diseases and adoption of measures, State, municipal and private, that science had indicated as necessary to counteract the diseases and the disease tendencies by which the community was continually assailed. At the present time public health acts and sanitary authorities have revolutionized the lives of the poor. The mortality from smallpox has diminished by 96 per cent. in 1891-95 as compared with the mortality in 1838-42. In the same period the deaths from fever have declined 82 per cent., while since 1871-75 there has been a decrease of 95 per cent. in the mortality from typhus and of 60 per cent from enteric fever. Since 1861-65 the mortality from scarlet fever has fallen 81 per cent., although that from diphtheria has risen in recent years and is now very much the same as it was thirty years ago. In phthisis the mortality has fallen 46 per cent. though it is still high. Cancerous diseases, on the other hand, appear to have increased, nor is the whole of the increase, Dr. Parkes considered, due to more precise diagnosis. Ague, which was extremely prevalent, has been nearly eradicated. Only those who died from acute alcoholism were returned as having died from the effects of drink, yet, notwithstanding the more temperate habits of the people, the deaths from this cause were as numerous as they were thirty years ago. The general effect of improvement in sanitation is that 600,000 persons reach the age of 21 years, who sixty years ago would have died.

Not Held to Standard of Infallibility.—The law does not require of a physician or surgeon absolute accuracy, either in his practice or his judgment. The law does not hold physicians and surgeons to the standard of infallibility, nor does it require of them the utmost degree of care or skill of which the human mind is capable, but that, while in the practice of their vocation, they shall exercise that degree of knowledge and skill ordinarily possessed by members of their profession. This is the declaration made by the supreme court of Nebraska, in the case of Van Skike vs. Potter, December, 1897, which was an action brought to recover damages from Drs. Potter and Reynolds for alleged negligent treatment of a knee-cap fractured in a baseball game. The trial resulted in a verdict and judgment in favor of the doctors, which the supreme court affirms. The evidence, the supreme court holds, sustained the finding of the jury that the defendants did not contract with the plaintiff to effect for him a permanent cure, and did not contract to visit and treat him until he was cured. As to whether they had pursued the proper method in setting his knee-cap, by wiring the fractured portions together, the supreme court says, "as is usual, the experts for the plaintiff agreed with his contention, and the experts on behalf of the defendants agreed with their contention," and it decides that they were not guilty of negligence in the treatment given the plaintiff, including the leaving the point of a drill in the bone, when broken off in drilling a hole in one of the pieces of the knee-cap, owing to a movement of the plaintiff's leg. Upon the issue, made by the pleadings, as to whether the defendants agreed to visit and treat the plaintiff until he recovered, the court holds that they were properly permitted to testify that at the date of their last visit to him, they informed him that they should not return unless they should be requested so to do. It also holds that in such a case, text-books on surgery, though standard authority on the subject, could not be read to the jury as independent evidence of the opinions and theories therein expressed or advocated.

Conjugal Diabetes. Dr. Schram, before the Harvard Medical Society of New York City, is reported in *Medical News*, January 1, as saying that in a series of 5,000 cases Boisumeau found 1.8 per cent. of conjugal diabetes. Most investigators agree that the development of the disease in both husband and wife is not accidental, but that an etiologic relation exists. The facts thus far published do not shed much light on the two theories of causation now held, viz: That the ordinarily accepted causes of diabetes are active in both husband and wife, and that the disease is contagious. Cases have been reported with almost conclusive evidence of contagion, but the nature of the contagium and how it is conveyed are mysteries. In regard to the doubt which has been expressed as to contagion in diabetes, I would like to mention some recently reported cases in which laundresses apparently contracted the disease by washing the clothing of diabetes. However, the question is still an open one. The authorities differ very much, but the French school is inclined to believe that diabetes is contagious. Dr. Schram reports the case of a woman, aged 76 years. She first came under observation seven years ago, and had been married forty-eight years. Sugar was constantly found in the urine in amounts varying from less than 1 to 4 per cent. She refused to submit to rigorous diet in July, 1897, in diabetic coma. Thirst and pruritus had been the most troublesome symptoms. An extensive ischiorectal abscess developed two weeks before death. One week later the husband's urine was found to contain 3 per cent. of sugar. Symptoms of the disease sufficient to attract his attention antedated his wife's death by about two weeks. Sugar is now found in his urine in abundance, but disappears for a time under diet and opium. He is now 76 years of age and apparently contracted the disease seven years after it was first discovered in the wife, and after nearly fifty-three years of married life. The couple had eleven children, seven of whom are alive and well.

Chief Surgeon Has no Implied Authority to Employ Assistants.—In the absence of expressed authority, there is no implied authority for the chief surgeon to employ assistants. So holds the supreme court of Michigan, in Burke against the Chicago and West Michigan Railway Company, Nov. 17, 1897. This was an action brought to recover for medical attendance upon a former employe of the defendant company named Radke, who had received injuries while working on one of its trains. After the employe received his injuries he was first treated by a local assistant surgeon of the company; but on a certain occasion he was taken worse, sent for that assistant, who could not be found, and then the plaintiff was summoned and continued to treat the patient for some weeks. During this time the chief surgeon of the railway company wrote to the plaintiff: "I am informed that you are now attending Herman Radke, an employe of the C. & W. M. Ry. Co., who was injured a few weeks ago. Will you be kind enough to inform me as to his present condition? Has he completely recovered? I would like a history of the case since you took charge of it. Please send your bill for services, itemized, to me if you are through with the case." This letter, the supreme court declares, contains no express authority to attend Radke at the expense of the company. Moreover, it intimates that the company acted prudently in limiting the chief surgeon's authority in respect to the treatment of injured employes to the employment of regularly appointed local surgeons of the company under contract relations, except in emergencies for temporary services only, because the plaintiff first rendered his bill against Radke at $2 for reducing fracture and the subsequent items at $1 each, but charged the railway company at $50 for the first item and $3 for each subsequent visit. But on its merits the court holds that a verdict should have been directed for the defendant in this case.

Are Second Attacks of Measles Infectious?—Dr. A. Kebbell writes to the London *Lancet* regarding the question above written, saying: "My attention was first drawn to the subject by a case which occurred in my practice some fourteen years ago. *Case 1.*—A middle-aged farmer with a large family of children had what was diagnosed as a well-marked attack of measles. I quite expected that some others of the family would be attacked, but to my surprise no one else took it, and I concluded that I had made a wrong diagnosis. I am not certain that he had had it before, but from the cases I have seen since I am of the opinion that he had. *Case 2.*—In 1895 a farmer, middle-aged, had a well-marked attack of measles. He had had measles before. He had five children and, his being a small house, no effort was made to isolate the case, but no other member of the family took it. In 1896 there was an epidemic of measles in the village; all his five children were attacked, and he again took it in a severe form. *Case 3.*—A boy, aged 14 years, was ill in the same epidemic with his second attack and a child, aged 6 years, played with him, but did not take it; but six weeks after she contracted it from another child. *Case 4.*—This occurred in my practice in September last. A laborer had a well-marked second attack of measles. He had five children; two of them had not had measles, and although no extra precautions were taken, neither was attacked. I am not aware that this subject has been noticed before, but if my surmise should be correct, it would be very satisfactory to be able to assure patients with second attacks that no isolation would be necessary, and that there would be no risk to any other persons.

Arthritic Basis of Basedow's Disease.—Vigouroux asserts that an arthritic tendency is the general condition, and hepatic insufficiency the immediate cause of Basedow's disease. This assumption explains the arthritic manifestations which so frequently accompany the affection and maintain their independent course. Infective diseases also prepare the soil. Certain symptoms hitherto attributed to the disease, such as alterations in the myocardium and valves should be ascribed to the preexisting diathesis. This conception that it is a diathesic intoxication with its principal localization in the thyroid gland, on which is superposed the thyroid intoxication, indicates general treatment, hygienic, etc., with special regard to the varying and opposite nutrition shown by the urine, alternating between the arthritic and the opposite characteristics of exaggerated dissimilation. The general treatment is supplemented by faradization of the gland and carotid arteries, including contractility, and reducing both gland and arteries to normal size. With frequent repetition an improvement is obtained equivalent to cure. He considers surgical intervention irrational, dangerous, useless and only allowable as a last resort when all medical means have been tried in vain. Poncet of Lyons, also denounces surgical intervention now, after having advocated it for a while.—*Bull. de l'Acad. de Méd.*, January 11.

Proceedings of the Mobile Convention. The Committee on Publication appointed by the Chairman of the Quarantine Convention of the South Atlantic and Gulf States, submits the following report:

Copies of the resolution offered by the Hon. R. H. Clarke of Alabama, and unanimously adopted by the Convention, together with copies of all other resolutions germane thereto, were forwarded to each Senator and Representative in Congress, to all members of the Convention and to all persons invited to attend. The cost of printing, stationery, postage, clerk hire, etc., to date, is $25.55, which subtracted from the amount collected, $53.75, leaves $28.20 on hand. From this remainder the expenses of this circular and of further correspondence must be deducted. Manuscripts aggregating 106,000 words have been received for publication, and more are to come. It is estimated that the entire material will make a book of some 350 pages. The lowest estimate for its publicacation yet received, including binding, wrapping, freight, postage, etc., is, for one edition, $577.50. If 200 members of the Convention, or others interested in quarantine matters, will subscribe for three copies each at one dollar per copy, the amount will pay for the entire work. The book will be unique and valuable. It will contain a mass of information concerning epidemics, quarantines, camps of detention and refuge, management of refugees; management of railway trains, mails and freights during an epidemic; principles and application of disinfection; theory and forms of pratique and health certificates; proper methods of establishing local, State, and interstate quarantines; and the broad legal principles upon which all these measures must be founded to be lawful and effectual. No such a compilation of facts and authorities upon this subject has ever before been undertaken. All shades of opinion will appear therein as expressed by their ablest exponents. But one edition will be published and the copies will soon be worth far more than their proposed cost. Your Committee makes this report and invites subscriptions to the work. No money is asked for now. As soon as enough subscriptions are received to pay for the cost of the book subscribers will be notified to send in their contributions. If not enough is promised no money will be received, and the manuscripts will be returned to their writers. Your prompt attention to the above is respectfully requested. Write to the Chairman of Committee, Dr. H. A. Moody, Mobile, Ala., stating amount of money you will subscribe and the number of copies you want.

Respectfully submitted,
H. A. Moody, L. E. Brooks, Erwin Craighead, Committee.
MOBILE, ALA., Feb. 24, 1898.

A Peculiar Transaction.—In our issue of Feb. 5 we published an article entitled "Five Years' Successful Experience with a Special Mode of Treating Pulmonary Tuberculosis," by Charles Wilson Ingraham of Binghamton, N. Y. We were not aware that it had any commercial value to the Doctor, but it seems that there was an "African in the woodpile," and we hereby apologize to our readers and other advertisers for having published it. It is only simple justice to say that nothing in the original suggested that it was an advertisement under cover. The following is the reply to a reader who wrote the Doctor in regard to his "special method":

Dr. . . . . , Madison, Wis.—*Dear Doctor:*—Your recent communication was duly received and I take pleasure in responding to the same. I thank you for words of appreciation you have expressed concerning the practical aspect of the mode of treating tuberculosis as advocated in my article recently published in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION. In your letter you requested that I forward you a supply of the compound iodine solution as prepared by myself, and if necessary a hypodermic syringe for the administration of the injections. I would much have preferred to quote you terms and later forward you a definite order, but thinking that the delay would be perhaps disappointing, I have already sent to you the "Introductory Order," which nine out of ten physicians order, and which gives you benefits which do not come with an order made under different conditions. In the 32-page circular which has been mailed you is a list of special hypodermic instruments (p. 28) which are required in order to properly administer the compound. The cost of these instruments almost invariably falls to the attending physician, and commencing with the current year, in response to a large number of requests for better introductory terms, the Bromine-Iodine Chemical Company of this city (Binghamton, N. Y., general agents for the sale of the compound, decided to send with each introductory order of ten ounces, involving a cost of $15, the complete hypodermic instrument outfit gratis. I should have stated first that the compound is put up for sale only in one-ounce bottles, and is sold at $1.50 per ounce. Ten ounces is the average amount required in the treatment of either pulmonary or laryngeal tuberculosis. The average length of treatment is four months, and this creates a cost of less than $1 per week for the remedy, which is within the reach of all invalids.

The *injections* are *administered once daily.* The maximum daily dose is one dram. The injections, as stated in the article in the JOURNAL, are attended with no pain, excepting the puncture of the hypodermic needle, and the most delicate and sensitive invalids can take the treatments.

Since the publication of my first article descriptive of the treatment of tuberculosis with bromine iodine compound, which appeared in the *Amer. Med.-Surg. Bull.*, March 15, 1895, nearly three years ago, the compound has been widely used in every State of the Union, and the results which I have reported have been repeatedly duplicated and better by general practitioners. I have every confidence that you will secure very pleasing results from the treatment, both as concerns percentages of recoveries and permanency of recovery. I shall be very glad to correspond with you further at any future time, and to advise with you by correspondence whenever my advice can be of service. As you have requested, I enclose bill herewith. Fraternally yours,

CHARLES WILSON INGRAHAM, M.D.

Dr. . . . . , Madison, Wis.,

To Dr. Charles Wilson Ingraham, Binghamton, N. Y., Dr.

Ten ounce bromine-iodine compound at $1.50.	$15.00
Special hypodermic instruments, complete	5.00
	$20.00
Credit special introductory discount on 10 oz. orders . .	5.00
Balance	$15.00

It is needless to add that the physician to whom this was sent promptly returned the "compound."

Malarial Hemoglobinuria.—Bastianelli, in *Annali di Medicina*, has recently contributed an excellent article upon malarial hemoglobinuria, based not only upon the cases observed in Rome, but upon the careful analysis of the work of others. He asserts that it is practically proved that hemoglobinuria occurs only in infections with the estivo-autumnal parasite. An interesting point is that hemoglobinuria following quinin is extremely rare in Italy, no case having ever been reported from the Campagna. The frequency with which these cases occurs increases, just as in cases of spontaneous hemoglobinuria, as one passes south. Hemoglobinuria due to quinin never occurs excepting in patients who are suffering or who have recently suffered from malarial fever. Spontaneous hemoglobinuria may be at times intermittent, or, as is more common, in single paroxysms. He divides the spontaneous hemoglobinurias into three classes: 1. In the blood there are found estivo-autumnal parasites of the pyrogenic cycle, that is, young hyaline forms. Here the hemoglobinuria occurs regularly in association with the segmentation of a group of parasites, that is, at the time of the ordinary paroxysm. This he terms the paroxysmal hemoglobinuria. 2. In the blood there are found only crescentic or ovoid bodies and pigmented leucocytes, or possibly pigmented leucocytes alone. Sometimes at postmortem the blood is quite negative as regard parasites. They may also be wanting in the internal organs, but from the intravascular melanosis it may be seen that the parasites have disappeared quite recently. In this class the paroxysm of hemoglobinuria is caused by the segmentation of a group of parasites which disappear spontaneously during the attack. The changes left in the blood and internal organs, however, are so great that the paroxysm continues for hours after the organisms have disappeared from the blood. 3. The blood examination is entirely negative, and the only evidence of there having been a malarial infection is the presence of an endothelial, perilobular, perivascular melanosis. The malarial process has come to an end some time previously. Here the attack of spontaneous hemoglobinuria does not depend upon the presence of parasites, but starts without apparent cause. Such paroxysms may be intermittent and repeated at short intervals, but are more commonly single, of long duration and very severe. This form is especially grave and is the "pernicious hemoglobinuria" of Marchiafava, while Bastianelli calls it the post-malarial hemoglobinuria. In all probability the parasites which produce the febrile paroxysm play an important causative part in some cases. An anemic condition of the blood, however, seems to be indispensable for the production of the phenomenon, as hemoglobinuria does not occur with the first paroxysm, either in the initial attack or in a relapse. It is rare under any circumstances in the first attack, usually occurring with the first relapse or after repeated relapses. There is also in some cases an individual pre-disposition. Hemoglobinuria does not occur in the most chronic cases of malaria, in those cases where a certain equilibrium is established between the needs of the organism and the function of the hematopoietic organs, but in those cases where the organism is yet freeing itself from the residue of the infection and anemia and melanosis still exist. Bastianelli finally takes up the hemoglobinuria due to quinin. He asserts that: 1. It occurs only in individuals in whom a malarial infection has preceded. 2. The attack is produced constantly every time that quinin is administered, whether it is given while the malarial attack is in progress, or whether it is given while the malarial infection has run its course. 3. Extremely small doses are capable of bringing on an attack. 4. It has been seen in patients who have already suffered from spontaneous hemoglobinuria. It is rare, excepting in the tropics. No doubt there exist cases of hemoglobinuria due distinctly to the administration of quinin.—*Amer. Jour. Med. Science.*

Pittsburg.—It is a matter of some surprise to the general reader to find that Pittsburg is one of the most prominent medical centers, outside the great seaboard towns of the country. This city has a population of over six hundred thousand, and with the towns and villages tributary to it, within a circle of thirty or forty miles, there are nearly a million and a half of people. As a large number of these people are engaged in mining, iron and glass manufacturing, railroading, and water navigation, the surgical work required is immense. In Pittsburg there are fifteen hospitals for the care of acute and emergency cases alone, beside the usual homes for old chronic incurable cases. Only five dispensaries are giving free service to the poor. Of the hospitals the surgical wards are the most prominent. In the West Pennsylvania Hospital, over twelve hundred of two thousand cases were surgical. In the other hospitals the proportion is still larger. The medical cases do not differ from those in other sections, except perhaps in the number of persons of foreign birth, who either display very low vitality or unusual vigor and strength. The air of the vicinity charged with carbon seems not to make any marked difference in the progress of disease. Formerly, Pittsburg was nearly all the time enveloped in a gray cloud of carbon smoke, from the furnaces and mills burning bituminous coal. The use of natural gas changed this, but recently the decline of the gas brings back the old carbon clouds. The postmortems reveal dark discolored lungs in all persons who are residents of the city. It is the opinion of many physicians that this carbon dust is antiseptic, and destructive to many forms of dangerous bacteria. The specialists do not think any marked influence comes from this smoke dust. All of these hospitals have large surgical staffs, and the variety and magnitude of the operations are not exceeded in any city of this country. The Western Pennsylvania Medical College is near the West Pennsylvania Hospital, and the students have rare opportunities to see these cases. This college has a graded three years' course, with a high standard for admission, and averages over three hundred students, with a faculty of professors and assistants, numbering nearly fifty. The building and appointments are modern and the laboratories seem to be well equipped and popular. An outdoor clinic and free dispensary connected with the college, is said to have over ten thousand patients a year. This college is a part of the Western University, and the good judgment of the profession is commendable in most loyally supporting it, rather than organizing rival colleges. The numerous hospitals are many of them sectarian, although the medical staffs are liberal and generous to each other. Important operations are performed and witnessed by all the hospital staffs, without rivalry or feeling. The West Pennsylvania Hospital is the largest and the South Side Hospital the most modern. The others are good and well managed. The Alleghany County Medical Society is the largest, having a membership of over three hundred. The Academy of Medicine is select and follows the same course as the New York Academy of Medicine or the College of Physicians and Surgeons in Philadelphia, requiring a paper or thesis from all proposed members. The South Side Medical Society is popular and has a large membership.

The mania for medical journals has concentrated in the *Pennsylvania State Medical Journal*, edited by a committee with much ability. This city seems not to be particularly overcrowded. Six hundred physicians of all schools are able to do the medical work. Many of these physicians are well-known members and writers of excellent papers read at the AMERICAN MEDICAL ASSOCIATION meetings. Of these, Drs. Duff, Thomas and others are well known for their surgical studies. Drs. Daley, Lang, Davis and many others are well known as contributors of excellent papers on medicine. Of the specialists, Drs. Ayers, Barham, Diller, McKennan, and others equally noted are prominent. Probably no city in the Union has more practical capable surgeons who are doing all-round surgical work, day after day in a quiet unassuming way, almost unknown to the world abroad. The modern operating-rooms of all the hospitals and the equipments for the best medical and surgical work prove this. In medicine the same thing may be said, the exceedingly practical suggestions and opinions expressed in the discussions of papers at the society meetings, indicate wide reading and intimate acquaintance with the progress of science.

The Academy of Medicine has accumulated a very respectable library and reading-room, which is growing rapidly. The South Side Medical Society has also the beginning of a library and many physicians have large and very valuable collection of books. It is a pleasure to note that while Pittsburg has many local pecularities, differing from other cities, the profession are loyal to each other, and united on broad principles of science and act together with great harmony. It is also a pleasure to note the absence of low commercial rivalry, which fosters free dispensaries, medical colleges, and advertising journals, dividing the profession into hostile factions. It may also be said by way of criticism, that a body of medical men, whose culture and experience is equal to that of any other city should be more widely known, not only in the literature of medicine, but by a larger representation in the AMERICAN MEDICAL ASSOCIATION.

Illinois Diploma Mills.–The following correspondence by the Secretary of the Illinois State Board of Health is self-explanatory:

OFFICE OF THE SECRETARY,
SPRINGFIELD, ILL., Dec. 28, 1897.

Hon. E. C. AKIN, Attorney General, Springfield, Ill.

Dear Sir:—For several months past inquiries have been received almost daily by the Secretary of State and this Board relative to the Independent Medical College of Chicago, and from all information obtainable it appeared that the concern was sending its so-called diplomas over the country to all who applied and tendered the necessary fee. Further inquiry and investigation developed the fact that its methods were almost identical with those of the Illinois Health University, a diploma mill, the charter of which was revoked by the Supreme Court early during the present year, on account of fraud, and furthermore that the "faculty" of both institutions was one and the same person. It seems that after the Circuit Court of Cook County entered a judgment of ouster against the Illinois Health University, the President of that concern, who was also one of the incorporators, with two other "professors" in the corps of teachers, obtained another charter enabling them to carry on a business which the Circuit Court had just determined fraudulent, which decision was afterward affirmed by the Supreme Court. This charter permitted them to grant to students and applicants any degree whatsoever, and it is unnecessary to add that they have vigorously availed themselves of the privilege. "Degrees" of Doctor of Medicine have been granted to incompetent and unqualified persons ignorant of the rudiments of medicine and the same degrees have made these ignorant and frequently unscrupulous persons lawful practitioners of medicine in several States in the Union, where registering a diploma from a "legally chartered medical college" was the only legal qualification. This obnoxious graduation of quackery into full-fledged doctors of medicine, breathing death and destruction wherever they go, and doing no good to any class of people on earth, except grave-diggers and undertakers, robbing boats of good roustabouts, livery stables of hostlers and barber shops of barbers, to use the words of a former Attorney-General in regard to the Illinois Health University, has brought deep reproach upon the State among others of the Union, and particularly abroad, where the infamous proceedings of this and a few other legally chartered institutions of the same ilk, have lowered the standard of diplomas issued by Illinois medical colleges of good standing, and has caused even those from institutions of the highest grade in the State, which are justly classed among the leading colleges of the country, to be regarded with suspicion.

I deem it unnecessary to add that neither the "professors" or promoters in either the Independent or the parent concern, are legally qualified physicians, or physicians even, to the knowledge of this Board. The President is understood to have a diploma dated 1892 from a college in Indiana which became extinct in 1890, but Polk's Directory, the authority on such matters in the United States, is silent on the subject of his alma mater.

As an illustration of how the "college" grants diplomas to "applicants," I desire to call your attention to one issued to A. H. Neiss, a hostler to a physician in Williamsport, Pennsylvania, which with the entire correspondence and Mr. Neiss' affidavit is enclosed herewith. As you can easily see, Mr. Neiss' entire qualifications were a prescription for tetter and one for piles, and $25 in cash. Incredible as it may seem Doctor Neiss, for he is a doctor from a legally chartered medical college in Illinois, and according to the privileges granted by this said charter should have the right to practice medicine in Illinois—can register his diploma and legally and lawfully practice medicine, perform surgical operations of all kinds in the neighboring State of Michigan (in Wisconsin also up to July 1, 1897), and in several States and Territories of the Union, where licenses are issued to graduates of legally chartered medical colleges, notwithstanding that he has no further knowledge of medicine and surgery than that which can be obtained after an attendance of two years in a physician's stable.

I have heard it said that graduates from these so-called medical colleges are legally authorized to commit murder, and while the remark may not have full justification, I very much doubt whether the people of the States and Territories in which persons having no knowledge whatever of the science of medicine, or of the human body in disease, can practice and trifle with the lives and health of the community, by the grace of a charter issued under the authority of the State of Illinois, will feel disposed to dispute the correctness of the statement. In either case, there is every reason to believe that these people, who are now helpless against the invasion of this horde of quacks, will be inclined to regard such charter in the nature of a burlesque, equivalent in effect to one which would empower a lunatic to don a uniform, equip himself with a revolver and club, and act as an officer of the law.

If there be no law in the State providing for the cancellation of the charter of a corporation which is transacting fraudulent business, I would respectfully recommend that you at once take whatever steps are necessary to have the charter of the Independent Medical College revoked by the Courts.

Very respectfully,
(Signed) J. A. EGAN, M.D., Secretary.

Enclosures: Diploma, affidavit, two letters from Independent Medical College, with envelopes, copies of two letters written by Neiss, translation of diploma, circulars, etc., from College (one of these formerly used by the Illinois Health University).

OFFICE OF THE SECRETARY.
SPRINGFIELD, ILL., Dec. 27, 1897.

HON. JAMES A. ROSE, Secretary of State, Springfield, Ill.

Dear Sir:—For years past this State has been disgraced by the presence of diploma mills masquerading under the designation of colleges, universities, academies, etc., which openly and brazenly have conferred almost every degree obtainable in reputable colleges and universities, to all who applied either in person at the institutions, or by letter from wheresoever on the inhabitable globe the applicant might abide, the only requisite qualification being the possession of the necessary ı. Degrees of Doctor of Medicine have been conferred on orant and frequently unscrupulous persons entirely unac-ıinted with even the rudiments of medicine, many of whom er saw a medical college or heard a medical term, and these ıe persons, have become legally qualified physicians in sev-l States of the Union, by simply registering their diplomas h the County Clerk, and in others, on obtaining a certifi-e from the State Board of Health, the issuance of which s mandatory, the applicants being from "legally chartered dical colleges."

This obnoxious graduation of quackery into full fledged Doc-s of Medicine, breathing death and destruction wherever y go, and doing no good to any class of people upon earth cepting grave-diggers and undertakers, to use the words of former Attorney General, to the deep reproach of this ate, has been legal, each and every institution concerned and is fraud in law and fact having a charter from the State, and redible as it may seem, even the degree of Doctor of Medi-ıe granted by many of these corporations (some of which ve not even one physician among their incorporators) to rsons in Germany, Japan and Australia, who have never left eir native soil, are technically as valid as those issued at the llege after an attendance and compliance with certain quirements, for many charters permitted degrees of all kinds be conferred in presence or in absence.

To illustrate the laxity with which charters have been issued, ıd with what facility individuals convicted of a crime are ıle to obtain legal authority to go forth and commit the iden-cal crime over again, I will call your attention to the case of linois Health University, an institution now happily defunct. uring its existence, it was a diploma mill of the most flagrant ıaracter and one that caused the utmost disgrace to the State ıroughout the Union. The Attorney General of the State roceeded against the concern for revocation of its charter. he Circuit Court of Cook County, after considering the evi-ence, entered the judgment of ouster, and the "university" ıereupon appealed to the Supreme Court. Pending the deci-on of this body, the president of the so-called university, who as one of the incorporators, with two members of the "fac-lty," procured from the Secretary of State another charter, hich in short permitted them to reopen the now practically losed institution, under another name, The Independent Med-al College, for almost precisely the same purpose, but how-ver, with greater power, the college now being lawfully enti-ed to confer any degree, which degrees in medicine, phar-ıacy, etc., entitled the holders "to all rights and privileges in his and other States to which students and graduates are ntitled who receive diplomas from other medical colleges, ıniversities and institutions, in the State of Illinois." Com-ent on this outrageous privilege is unnecessary.

The Independent Medical College is a worthy successor of ts sire. If such were possible it is a ranker diploma mill. 'Degrees" are sent broadcast over the world to all who apply.

The Attorney General having cognizance of these unlawful roceedings is about to take steps to have the concern's char-er revoked, and order that the promotors of this and the par-ent institution, may not re-open the concern under a new name ınd a new charter, conferring even additional powers, I would espectfully ask that you issue no further charters conferring ıpon any person or persons the right to conduct a medical college, or to grant the degree of Doctor of Medicine, or any miscellaneous degree, without first permitting this Board to give an opinion on the application.

Very respectfully,
J. A. Egan, M.D., Secretary.

Office of the Secretary,
Springfield, Ill., Dec. 27, 1897.

Hon. James A. Rose, Secretary of State, Springfield, Ill.

Dear Sir:—I have the honor to request that you will not issue any further charters to persons or corporations for the purpose of treating disease or the prescribing of medicine, until a Court of competent jurisdiction decides that it is lawful for persons not possessing the qualifications required by the Act to Regulate the Practice of Medicine in the State, to prescribe for and treat others.

In this connection I will respectfully invite your attention to a communication from the Attorney General to your office under date of Aug. 24, 1893, in relation to the protest of this Board against the incorporation of certain companies, in which the following remarks occur:

. . . . . "We are of the opinion that the incorporation of companies for the treatment of diseases, etc., and the prescribing and the dispensing of medicines are of doubtful expediency and should not be encouraged. We advise you, therefore, to withhold the license until you are compelled to issue it by the judgment and order of a competent Court.

"Our reasons for these conclusions are that for the treatment of diseases and practice of surgery, none but persons learned in these professions and licensed under the law are permitted to act. The same applies to the prescribing and dispensing of medicines. This appertains expressly to the profession of the physician, of the surgeon and of the apothecary, which are classified among the learned professions. Under the law we fail to see how a corporation can be licensed to practice one of these professions in the State of Illinois, and to grant a franchise for this purpose we regard equivalent to granting a license."

At present there are several companies in the State legally chartered for the purpose of dispensing and prescribing medicine and treating disease, among the incorporators of which not a legally qualified physician appears. Comment on this state of affairs is unnecessary. Even if the names of licensed physicians appeared in the list of incorporators, there would seem little justification for issuing the charter, as it clothes others not qualified with equal power.

Very respectfully,
(Signed), J. A. Egan, M.D., Sec'y.

Societies.

The following meetings are noted:

Illinois.—Chicago Medical Society, March 9.

Michigan.—Saginaw County Medical Society, Saginaw, March 11.

Missouri.—City Hospital Medical Society, March 3; St. Louis Medical Society of Missouri, March 5.

New York.—Chemung County Medical Society, Elmira, February 22; New York County Medical Society, New York City, February 28.

Ohio.—Cleveland Medical Society, February 25.

Tennessee.—Dickson County Medical Association, Dickson, March 1.

Texas.—The Lavoca County Medical Society was organized, Halletsville, March 8.

Virginia.—Richmond Academy of Medicine and Surgery, February 23.

Louisville.

Smallpox.—Smallpox has been raging in Middlesboro, in the southern portion of the State, and at Jellico. The epidemic has been very mild in character, and almost exclusively confined to the very poorest classes. Dr. J. N. McCormack, Secretary of the State Board of Health, has been on the field in person, assisted by Dr. Arthur McCormack of Bowling Green, and Dr. B. W. Smock of Louisville. General vaccination has been performed under compulsion, a number of cases being found by the officers, in the rounds of house to house vaccinations, which had not been reported at all. Latest advices show that the worst is over, there having been erected detention hospitals and pest-houses which had not been in use before the State Board of Health were notified.

Osteopaths.—Once more Kentucky has come to the front with legislation looking toward the prevention of quackery in the State by passing in both houses of the Legislature a bill which is an amendment to the practice act now in force which will make all applicants to practice osteopathy stand an examination before the State Board. There was a bitter fight in the House against the bill and a whole day was spent in speech making, but the bill was passed by a safe majority and will go to the Governor, who will promptly sign it. The opponents of the bill recognize the fact, that practice in the State will be prohibited graduates of the Still college under this law.

February Deaths.—There was a total death-rate of 255 against 267 for the corresponding month last year. Consumption caused 33, typhoid fever 12, pneumonia 46, old age 14.

License.—A bill has just been passed by both boards of the common council taxing physicians a yearly license of $10. This bill also includes midwives who will have to pay their license fee before being allowed to practice, at the same rate, $10.

Washington.

Health of the District.—Report of the Health Officer for the week ended February 26, shows the total number of deaths to have been 105, of which number 66 were white and 39 colored. The principal causes of death were: Diseases of the nervous system, 13; circulatory, 13, respiratory, 24. There were 2 fatal cases of diphtheria, 3 of la grippe, 1 of typhoid fever and 1 of measles. At the close of the week there were 52 cases of scarlet fever in 36 premises and 34 cases of diphtheria in 32 premises, under treatment and isolation.

COLUMBIAN UNIVERSITY HOSPITAL. The "Columbian Women" held a special meeting at the University building on the 28th instant, to meet the faculty of the medical department for the purpose of organizing a plan for raising funds to furnish the new hospital of the University. Plans were advanced and discussed by Drs. A. F, A. King, W. P. Carr, D. K. Shute, President Whitman and Dr. S. H. Green. A special committee for that purpose was appointed, consisting of Mrs. D. C. W. Richardson, Mrs. President Whitman, Mrs. D. Shute and others.

WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.—The 277th meeting of the Society was held on the 4th instant at the residence of Rev. Dr. Cuthbert. The essay of the evening was read by Dr. Bovee, entitled "Permeability of Salpingectomy Stumps." The subject was discussed by Drs. Fry and Stone.

CENTRAL DISPENSARY AND EMERGENCY HOSPITAL.—At the recent meeting of the Attending Staff, the following report was presented for the month of February: New cases, 797; total visits, 2213; prescriptions, 2674; deaths, 3; postmortems, 2; emergency cases, 142; operations, 142; ambulance calls, 33. It was announced that the Senate Committee on appropriations had recommended the usual appropriation of $15,000 for maintenance, and $2,000 additional for improvements and repairs.

Cincinnati.

DR. LUDWIG BREMER of St. Louis was the guest of the Academy of Medicine, February 21. The Doctor demonstrated his interesting discoveries of the reaction of the blood of diabetic patients to aniline colors, which discovery by the way only brought the discoverer his well-earned fame years after when it was taken up and substantiated by German authorities. In addition to his experiments with methylene blue, which have been extensively printed, he also showed that Congo red and methyl violet are equally efficacious in proving the presence or absence of the disease; indeed, the essayist stated a personal preference for the Congo red. His experiments are made with dried blood obtained from the finger, smeared on glass slides, which are then heated to 135 degrees C. Macroscopic examination after several minutes staining, shows almost entire absence of color in the diabetic specimen, while with normal blood, control experiments being made simultaneously, a color is produced comparable to that of the eosin stain.

G. A. R.—In view of the great G. A. R. encampment to be held in this city during next September, the medical profession has already organized, under the directorship of Dr. J. C. Culbertson, editor of the *Lancet-Clinic*, for the care of such old soldiers as may be medically or surgically disabled during that week. The organization is of a strict military character, with a director general, medical inspectors, surgeons and assistant surgeons, and numbers in all fully three hundred of the representative physicians of the city. The medical inspectors are composed of those who acted in a medical capacity during the late war; the surgeons from the older, the assistant surgeons from the younger men of the profession. Every man is to be commissioned regularly from the board controlling, and all orders are given in regulation style directly from the medical director. At the various camps reliefs will be constantly stationed, as also at the different depots. Ambulance and emergency corps have been provided. The entire corps will be uniformed while on duty. At various points, drug stores for the most part, near which large crowds are expected to congregate, surgeons will be in waiting, and a yellow flag, the sign of medical attendance the world over, will be conspicuously displayed. Daily sick calls will be paid and records kept of such as require medical attention. A record will be made of this, as well as of all other work done, and it is the intention of the corps to publish as complete a report as possible of their transactions during encampment week. The woman's relief corps have expressed their willingness to cooperate with the medical profession and will be commissioned as nurses. The apothecaries have also volunteered the vices as hospital stewards.

AT THE regular monthly meeting of the Original Re Society, held February 10, Dr. Horace Whitacre demo ted, by microscopic sections and photo micrographs, the i tity of clinically diagnosed gliomata of the retina with mata. The slides showed conclusively the endothelial and sarcomatous nature of the tumors presented. The ist stated that the new growths were sent to him with the ical diagnosis of glioma made by skilled oculists. The dis sion which followed brought the general concurrence of society with the speaker.

THE TRUSTEES of the Cincinnati Hospital held an adjou meeting the afternoon of February 14, in which it was dec to at once draft a bill and present it to the legislature, a privilege to issue $250,000 in bonds, the same to be use buying land and erecting an isolated hospital for contag diseases. The matter was brought up before the Cincin Academy of Medicine that evening and met with the hear endorsement.

BY THE ORDERS of the city health officer, the consump patients at the city infirmary, for the most part cases of phthisis, are to be removed to the branch consumptive ho tal on proving their citizenship to Cincinnati.

THE BOARD OF ADMINISTRATION of Cincinnati has passed ordinance empowering the health officer to make all the nec sary investigations for the purpose of detecting the pres of tuberculosis in dairy cows, with a view to eventually sta ing out the disease. With the completion of these investi tions, it is the intention of the health officer to introduc bill in the legislature providing for the removal of all tuber lous cows from dairies.

CHANGE OF ADDRESS.

Brown, E. J., from 69 Syndicate Block to 3027 Pleasant Ave., Minn olis, Minn.

Eisendrath, D. N., from 3085 to 3125 Indiana Ave., Chicago, Ill.

Hansen, C. C., from Mosul, Turkey, to Chieng Mai, Laos, Siam.

Jensen, P. C., Manistee, Mich. to 100 Washington St., Chicago, I

Jones, O. H., from 25 W. Saratoga St. to 211 W. Franklin St., Baltimore.

Kirkpatrick, W. L., from Crab Tree, N. C. to Jameson, Texas.

Lathrop, W., from Miners Mills to Hazelton, Pa.; Luebbers, A., fro 2001 N. Market to 1686 N. 19th St., St. Louis, Mo.

Nywall, A. G., from Batavia, Ill., to 87 N. 48th Ave, Chicago, Ill.

Perry, T. B., from Buffalo, N. Y. to San Francisco, Cal.

Wenzlick, W., from Chicago, Ill. to 3630 Flad Ave, St. Louis, M

Warner, A. L., from Hospital to Penfield, Ill.

LETTERS RECEIVED.

Alexander, L. C., Philadelphia, Pa.; Allen, J. B., Cambridge C Ind.; Arsdale, W. J., Pittsburg, Pa.

Bradstreet, E. C., Gold Hill, Colo.; Brewster, Quincy E., Boston, Ma Burnett, J. A., Lewiston, O. T.

Chamberlain, C. L., Kinsman, Ohio; Chesman & Co., (2) Nelson, S Louis, Mo.; Coe, Henry Waldo, Portland, Ore.; Cokenower, J. W., D Moines, Iowa; Cryer, M. H., Philadelphia, Pa.

Daniel, R. P., Jacksonville, Fla.; Deems, B. B., St. Louis, Mo.; De son, Chas., Denver, Colo.; Dunlap, P. G., Adger, Ala.

Ehrhardt, H., St. Louis, Mo.

Fairchild Bros. & Foster, New York, N. Y.; Fankboner, A. V., India apolis, Ind.

Graham, John W., Denver, Colo.

Herold, J., New York, N. Y.; Horlbeck, H. B., Charleston, S. C.; He witz, Orville, Philadelphia, Pa.; Howle, W. P., Oran, Mo.

Larimer, W. T., Allegheny, Pa.; Lehn & Fink, New York, N. Y.

Mackin, M. C., Independence, Iowa; Martin, Harry H., Ashland, K McCormick, J. H., Gaithersburg, Md.

Newberry Library, The, Chicago, Ill.; New York Pharmacal As Yonkers, N. Y.

Parke, Davis & Co., Detroit, Mich.; Polk, R. L. & Co., Detroit, Mich

Sangree, E. B., Nashville, Tenn.; Schering & Glatz, New York, N. Shoemaker, John V., Philadelphia, Pa.; Starkey, Horace M., Chica Ill.; Stover, G. H., Denver, Colo.

Therapist, The, London, England; Thomas, C. P., Spokane, Wa Tyree, J. S., Washington, D. C.

United States and Canada Mercantile Agency, Chicago, Ill.

Wampole & Co., H. K., Philadelphia, Pa.

THE PUBLIC SERVICES.

Army Changes. Official List of Changes in the Stations and du of officers serving in the Medical Department, U. S. Army, fr February 26 to March 4, 1898.

Major William C. Shannon, Surgeon, will upon the expiration of present sick leave of absence, report in person to the president the Army retiring board at San Francisco, Cal., for examination the board. By direction of the President.

Navy Changes. Changes in the Medical Corps of the U. S. Navy the week ending March 5, 1898.

Surgeon F. W. F. Wieber, detached from naval hospital, Norfolk, and ordered to the "Miantonomoh" March 10.

Surgeon G. P. Lumsden, detached from special duty at Norfolk, Va., ordered to the "Franklin."

P. A. Surgeon B. R. Ward, ordered to the "Katahdin" March 1.

P. A. Surgeon I. W. Kite, detached from the "Franklin" and order to the naval hospital, Norfolk, Va.

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ADDRESS.

CHAIRMAN'S ADDRESS.

Delivered in the Section on Stomatology, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, Pa., June 1-4, 1897.

BY R. R. ANDREWS, D.D.S., A.M.
CAMBRIDGE, MASS.

It is the usual duty of the Chairman of Sections of this Association to give, in an annual address, a review of all matters new and important that have a special interest touching the scientific character of the work of the Section to which he may belong. It has been thought best to modify to some extent the nature of the subject on this, the occasion of the Golden Anniversary of the American Medical Association, and to give in place a brief history of the work of the Section in the past. The history of our Section is one of which we may well be proud. Our meetings have been full to overflowing with interesting and valuable papers and discussions, and there have been many brilliant lantern exhibits. The work has been in the main along the line of higher themes in the realms of scientific research, and we may rest assured that by comparison with the programs of similar organizations, the work of this Section does not suffer. This statement needs no defense. It is, I believe, already conceded.

In the year 1880 the men who largely represented the brain and sinew of our profession, believing that dental surgery then held a position beneath that to which it was entitled, and believing that such a condition should be remedied, felt it their duty to devote a portion of their time and energies to bring about a change for the better. These men earnestly believed that dentistry was a specialty of the healing art, and as such should have representation in the sessions of the National medical organization. They were actuated by no narrow views. Their sole purpose was the up-building of their profession. Presenting themselves at the meeting of the American Medical Association, held at Richmond, Va., in 1881, as delegates from local medical societies, they proposed the organization in the Association of a separate Section on Oral and Dental Surgery. These delegates were Drs. W. W. Allport, T. W. Brophy and Eugene S. Talbot of Chicago; Dr. J. L. Williams of Boston; Dr. G. L. Goodwillie of New York; Dr. Hauxhurst of Grand Rapids, Mich., and Dr. G. L. Parmlee of Hartford, Conn.; all practitioners of dentistry holding medical degrees. Each gentleman constituted himself a committee of one to champion the movement among the members of the Association who were in attendance. They found no opposition whatever; on the contrary the oldest members, and especially the ex-president of the Association, were heartily in sympathy with the movement and anxious to assist in bringing it about. At the morning session on Thursday, May 5, Dr. Samuel D. Gross of this city, addressing the Association, asked for a suspension of the regular order of business. This motion was granted. He then moved that the by-laws of the Association be so amended as to create another Section, to be known as Section VII, entitled "Dentistry." The motion was favored by Dr. Sayre of New York and Dr. N. S. Davis of Chicago, and was adopted. The object of suspending the rules at this time was for the purpose of creating the Section that it might commence work at that session, the members who were to constitute the Section being prepared with papers for that purpose. Dr. Toner of Washington objected, saying that he was not opposed to the Section organizing and commencing work that year, but he did not wish to make a precedent for future Sections. It was therefore decided that it could not go into operation until the next year, when according to the Constitution and By-laws of the Association, dentistry was officially recognized by the American Medical Association.

The Dental Section has met with the Association every year since its formation. The quality of the papers presented, from a scientific standpoint, has been of the highest order. Our place is now here where it seems to me it ought to be, among the specialists of the great guild of physicians, a part of the body of scientific men whose life work is the amelioration of human suffering.

In the annual address delivered before this Section at its last meeting, I gave the result of my investigation of the development and structure of the dental enamel, and in a friendly way criticised some of the views of another writer, who had recently written on the same subject. I have given considerable time to the further investigation of this subject, preparing a paper which I read before the Institute of Stomatology of New York, in February last. This paper was discussed by some of the more eminent biologists of that city, who substantially agreed with me in every point presented to you at our last meeting. The only important point on this subject I have to present as new matter, is the fact, unnoticed before, that some of the globular bodies that have been deposited by the ameloblasts to form the enamel rods, are not homogeneous masses of substance, but are globules having within their substance aggregations of minute spheres (calco-spherites) which for some reason have not coalesced into a mass. These minute globular bodies are held together by what appears to be an envelope or membrane, the whole forming a globule of the same size of what I may call the normal enamel globule at its point of calcification. In some of my sections I have found these enamel globules containing the minute spheres covering quite an area of forming enamel, and they are shown in this condition as they are drawn down into the calcifying rod. They are more than likely calcified in this condition.

It would appear as though it were a fault of structure, perhaps some arrest in the developed mental process. Of this I can not be positive, but the appearance would seem to account for the minute globular structure seen within the rods of the calcified enamel as shown in some of Dr. Williams' illustrations.

A very valuable contribution to the study of the pathology of the enamel, by Dr. J. Leon Williams of London, has recently appeared in the pages of the *Dental Cosmos*. While the subject matter of the text is not altogether new to those familiar with this line of investigation, the lucid way in which the subject is presented, and the very thorough descriptions of the minute pathologic conditions of the tissues involved, together with the great beauty of the large number of illustrations, make it the most notable contribution to the literature of this subject that has yet been presented to the dental profession. He has given a large mass of evidence and the labor must have been enormous. Being familiar with the extreme difficulty of preparing sections of enamel for photo-micrography, and knowing something of the time required, I can fully appreciate the great work Dr. Williams has accomplished. This series of papers follows along the line of investigation given in one I read before this Section in the year 1890, on "A Study in Dental Pathology, Including Pits and Fissures of the Enamel," but is much more complete. I can heartily agree with Dr. Williams in most of the conclusions advanced, and trust we may have this work published by itself in a more permanent form, for reference and for the use of students in our educational institutions.

The year that has passed has pretty conclusively proven that the use of dental cataphoresis may no longer be considered as in its experimental stage, in so far as its investigations relate to the obtunding of extremely sensitive dentine, and its value in bleaching badly discolored teeth. There are a few still doubtful about its future effect upon the life and health of the dental pulp, but the majority of cases reported have been remarkably successful and attest to its undoubted value. The method has also been found to be certain in its action, in fully obtunding exposed pulps prior to their removal. Investigations are being made by this method which promise success in the treatment for the relief and cure of chronic cases of pericementitis by a perfect system of sterilizing root canals at the time of filling. It has been found that almost any good kind of antiseptic can be used; oil of cassia, hydrogen dioxid, chlorid of zinc and silver nitrate have all been tried with success, the method of using being somewhat like that used for obtunding sensitive dentine. This treatment is said to allay the pain in a short time and to place the tooth at once in a condition for immediate root filling. The results obtained by using silver nitrate are significant. Sections made from teeth which had been treated by a solution of silver nitrate by Dr. Bethel of Kent, Ohio, were sent to me for microscopic examination. The higher powers of the microscope revealed the fact that the silver salt had been forced by the current a very considerable distance into the dentinal canals, and each canal had been completely sealed up by it. As the dentine of the root is almost always infected by a putrescent pulp, which sends its organisms into the canals of the root, we can clearly see the importance of this perfect method of sterilization. In the treatment of pyorrhea, the cataphoric method of medication has been found to be a valuable acquisition, and in some cases it has been claimed to have been used with considerable success in facial neuralgia. The very considerable value of the application of the X-ray as an assistance in diagnosis in our specialty, has been repeatedly demonstrated during the year that has passed. It is now possible to make sciagraphs, or shadow pictures, of any part of the mouth and jaws, showing the teeth in proper relation with their alveolar sockets. The roots of the teeth being denser than the bone which surrounds them, show clearly throughout their whole length, and we are thus enabled to note any peculiarity that may exist. In the city of Boston there is one of our profession who has made a special study of this work. He has succeeded in making some very remarkable demonstrations. Many of his pictures are of unerupted teeth deep within the tissues of the jaw. It is possible to show fragments of roots that are the source of obscure troubles. One picture shows a broken pulp canal drill just beyond the apex of the roots that for months had been the cause of a most troublesome abscess. The broken drill was removed, resulting in a perfect cure. It is yet doubtful if we shall be able to determine diseases of the tooth pulp by the X-ray, but authorities assure us that by it it is possible to diagnose necrosis, tuberculosis and exostosis. They claim that diseased conditions cast a shadow differing from normal tissue, and thus the disease is readily demonstrated.

The question regarding the endowment for dental research has recently been brought to our attention by a letter to the *Dental Cosmos* from Dr. C. E. Kells, Jr. He believes that an incalculable amount of good would result to our profession from such compensation for original investigation. The importance of the matter presents itself to us at this time largely on account of the recent magnificent work of Dr. Black and Dr. Williams, and it is earnestly hoped that a fund sufficient to continue these investigations may be appropriated by individuals and societies, that this important work may continue. To quote in part an editorial from the April *Cosmos:* "Nature reveals her hidden secrets to those only who have learned how to question her and who are able to interpret her answers; she demands of her devotees absolute fidelity, uncompromising honesty, unflinching accuracy, absolute self-abnegation and never-flagging enthusiasm in her cause. To meet these conditions requires the expenditure of much time and energy, and just so far as the time of the investigator is occupied with matters foreign to his calling, will his results be curtailed. It would be well to utilize his abilities for the general good by placing him beyond the demands which the necessity for maintenance imposes, thus securing for all those advantages which the entire devotion of his abilities to scientific research would entail."

This matter is a subject that merits our earnest consideration. Within the past year there has been a movement on the part of some of the dentists of the city of Baltimore to bring about the enactment of a law that shall require the examination of the condition of the mouths and teeth of the children of the public schools. The importance of this movement may not at first thought seem to be as serious as it really is, but if we consider it carefully it will be found grave enough to enlist our most careful consideration, fraught as it is with serious consequences, both to the present and future, and a law of this kind should be enforced in every city in our country. The time of life that the school years cover is very important to the child from the dental standpoint. If the teeth are cared for during this period, the chances favor their permanent retention and for this reason, if for no other, this movement should be urged and encouraged by every intelligent dentist.

The connection between bacterial growths in the oral cavity and severe disturbance of the general health is today well known. There are those who carry more filth in their mouths than they would tolerate on their skin. And this is the condition of the mouths of many of our school children. There are those whose teeth receive very little, if any, care; on inspection they will be found to be covered with a thick deposit in an active state of fermentation. In these mouths we shall find the gums inflamed, suppurating and decayed roots with chronic abscesses continually discharging their putrefactive products into the mouth. The fact that such mouths may be the source of disease and even death has been very much underrated. It is known that pulmonary diseases are brought about by the "inspiration" of germs from the oral cavity. The mouth is a veritable breeding place for the infection of the digestive apparatus.

Prof. W. H. Miller of Berlin by experimentation with cultures, estimates the number of cultivable bacteria in a very unclean mouth at over a billion. Many of these, he thought, were carried to the stomach at every meal, to be replaced by others developing between meals and over night.

I doubt if there is a better culture medium to be found for the growth and multplication of the pathogenic bacteria than the exposed decaying dentine of the human teeth after the enamel has been destroyed and the dentine decalcified. In it we have a substance perhaps more favorable for the growth and development of these organisms than any other tissue. This in itself is a very significant fact of which we should not lose sight while considering this subject. There should be special care on the part of those who of necessity are brought into close contact with persons suffering from contagious diseases. Many children in our public schools inherit a tendency favoring a development of these troubles. In our crowded, hot and insufficiently ventilated schoolrooms the inhalation of micro-organisms and the cultivation of these organisms in decaying dentine may be, and probably is, the cause of disease and death. Of all the ills that man is heir to the most appalling in its dire results is tuberculosis. Today it is known to be communicated by infection alone, the infecting agent being the bacillus of the disease. It blights all who come within its grasp, sapping the life blood and making the life a wreck followed by misery and death. The children of the poor, especially the immature and sickly, are most susceptible to this disease. In a paper recently published in the JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION on tuberculosis infection from food the author, Dr. Charles E. Winslow, tells us that there is an increasing anxiety among thinking medical men due to the resistance of tuberculosis to the advanced curative remedies. All come far short in checking this most formidable of all diseases. The most advanced investigators believe that the colonization of Koch's bacilli in the animal tissue is the cause of the disease. If this be true, and there can be little doubt of it, it gives ground upon which we can work out our own salvation by controlling the spread of the disease. Our children are fed largely on milk, and the most common disease of the cow from which the milk comes is tuberculosis. Very little milk reaches our city free from a mixture with milk from tuberculous animals. The close relation that exists between the cow and the human family renders it possible for the spread of this frightful malady and for the child's best friend to become his worst enemy.

In an article on carious teeth and tuberculous cervical glands Stark, in the *Revue de la Tuberculeuse*, July, 1896, notes the frequent association between carious teeth and enlargement of the cervical lymph glands. He examined 113 children with the enlargement of lymph glands and found that 1 per cent. had carious teeth. Not being able to find any other apparent cause for the condition, he concluded that the swollen glands resulted from the defective teeth. They correspond in situation, in time of development and in the degree of enlargement with the condition of the teeth.

The involved glands were situated on the same side as the diseased teeth, the anterior glands being enlarged if the incisors were carious, and those at the angle of the jaw when the molars were involved. Toothache frequently preceded the enlargement of the glands. Stark is of the opinion that the enlarged glands are tuberculous in quite a number of these cases. He reports two in which he was able to demonstrate pretty conclusively that the carious teeth had been the point of entrance of the tubercle bacilli. One, a boy aged 18 years, who had always been healthy and without a family history of tuberculosis, had caries of the molar teeth on both sides with enlargement of the cervical glands. The glands were excised and the teeth extracted. The former proved to be tuberculous and tubercle bacilli were found on cover slip preparations from two of the decayed teeth. The second was a girl of 14 years, with excellent personal history and without a history of tuberculosis in the family. The first inferior molar tooth on the left side was carious and there was an enlarged gland below the ramus of the jaw. The gland was removed and showed definite tuberculous disease. Between the diseased molar and the adjacent tooth and also forming the floor of the cavity in the tooth were characteristic tuberculous nodules with typic giant cells. This latter case is especially interesting as it seems to show that a carious tooth may be the seat of a primary tuberculous focus. With regard to treatment, the glands should at once be removed and the carious teeth be either properly filled or extracted. As a prophylactic, the teeth should be better cared for, and Stark advocates, with Röse, the placing of all school children under supervision.

An interesting case has just been reported to me by a dentist. A boy, about 16 years of age, who was an invalid and whose teeth were so extremely sensitive that he could not or would not have them filled when they were decayed, had trouble with his cervical glands and had them operated on, with relief for a number of years. Afterward it was found that other glands were infected with tuberculous disease and the patient was taken to New York for treatment. The surgeon who performed the operation of excising the infected glands, insisted that all the decayed teeth in his mouth should be at once removed, giving as his reason that the decayed teeth were largely the cause of the infection.

Another case was reported to me, in Cambridge, of an immature child, who having trouble with the cervical glands, had them operated on by a local surgeon. Some little time afterward symptoms of tuberculosis set in and the surgeon who performed the second operation thought it might be probable that the child had been infected by instruments used in the first operation, the family history showing no signs of tuberculosis. It was stated to me that the molar teeth of this little patient were very largely decayed, and with our present knowledge it seems more than probable that this terrible infection was brought about by the organisms of this disease, which were cultured in the decaying dentine of the molar teeth.

The importance of dealing with this subject must commend itself to us. In many of our States there are commissioners whose duty it is to make examination of cattle suspected of having this disease. The cattle found infected are destroyed. Does it seem less reasonable that we should try to prevent our school children becoming infected? It is a matter that should come home to every family, who would surely desire such supervision after understanding the importance of the subject, if by any possibility it would shield their children from this terrible infection. For this reason they should support a law directing such examinations to be made in our public schools.

The important question we have to consider is: How are these examinations to be brought about? One correspondent states, "if your board of school commissioners is the same as ours, a request of this nature would be looked upon as an unwarrantable piece of interference, a bid to obtain practice." This same writer, however, acknowledges the true charity and philanthropy of the movement. Another says, "if the dental societies are sufficiently in earnest and sufficiently united to pledge themselves to furnish competent members of their bodies at regular periods of each year, a committee from those societies could petition the board of education to appoint an examining dentist to each school." This suggestion, it seems to me, is a most excellent one. Our profession should do more in the way of public charity than it does. We do very little compared to the gratuitous services rendered by the medical profession. The first move should be through the State board of education by the State dental organization. All school children under the care of the family dentist should be required to present to the masters of each school a certificate signed by their dentist. This should be considered sufficient evidence of the healthy condition of the child's mouth. All other children should pass the required examination. An expert could make an examination of each scholar in from three to five minutes. In most of the large cities there are one or more dental colleges with infirmaries for the treatment of all such cases. In these cities the children of the poorer classes should be sent for proper treatment. In cities where there are no colleges, dentists can be appointed by the dental societies to attend to this charity work. The boards of school commissioners in the various States are men of culture and liberal education. They can not fail to see the necessity for such dental supervision, if the matter is presented to them in the proper manner. It will be apparent that such examinations are for the real interest of the children, and an act of real charity and philanthropy, guarding the common welfare and safety of those under their care.

The matter is of such vital importance, that we should seek the co-operation of every dental organization in this country to aid us in our efforts to bring about the examinations and treatment of the mouths of the children in our public schools; who better than they can recognize the justice and importance of this matter. It will save the children from sorrow and suffering, and in many cases such supervision will triumph over disease and death.

LECTURE.

THE MEDICAL PROFESSION.

A Lecture to the Students of Shurtleff College.

BY JOHN B. HAMILTON, M.D., LL.D.
CHICAGO, ILL.

It is with pleasure that I respond to the polite request of the energetic and distinguished President of Shurtleff College and speak to you at this time and place. The subject assigned was part of your annual series, and one naturally congenial to me. I feel, however, very deeply my sense of responsibility of inadequately treating so vast a subject and of doing justice to a profession which is only junior to that of the priesthood itself, and has proceeded from such an early period of time that its records blend with the legends of mythology and the Vedas, Vagas and Charakas of oriental lore. The friends of Shurtleff College should take a deep interest in matters pertaining to the medical profession; for, its name is due to a member of that profession, Dr. Benjamin Shurtleff, of Chelsea, Mass., its founder.

As to the origin of the profession of medicine, modern investigation has shown that the most ancient traditions and records of the nations of the West refer to the "learning and wisdom of the East," and that a study of the origin of the medical art is not finished when the Greek and Latin classics have been explored; but it even goes back beyond the time of the most ancient Egyptian physicians and embalmers. The great school of the Hindu physicians was known to the ancient Greeks, and "when Alexander, after having conquered Persia, was approached, Taxiles endeavored to conciliate the great envoy by presents, saying I shall send to the Great Conqueror, your master, my beautiful daughter, a goblet made of ruby that miraculously replenishes itself with liquid, a philosopher of great knowledge of the sciences, and a physician who has such skill that he can restore the dead." (Malcolm, Hist. Persia.)

The Charaka Samhita, now being republished and translated into English in Calcutta by the learned Pundit Avinash, shows an intimate knowledge of dietary preparations and of the means of preserving health, which is remarkable, considering as we now understand it, that most of their knowledge of anatomy was derived from dissection of the lower animals, as although the rule that there is nothing new under the sun doubtless applies to most things, it does not appear from the records that there were any antivivisectionists in those days. It is known that the ancient Hindus carried their knowledge of astronomy back to the year B. C., 1181 according to Archdeacon Pratt; 1168, B. C., according to Rev. R. Main's calculation, and it is said that the ancient Brahmins, who devoted their entire lives to the cultivation of an education of poetry, astronomy, medicine and religion, excelled in geometry and algebra, which antedated the Greeks, perhaps Euclid himself.

Wise, in his review of the history of medicine among the Asiatics, considers that the Charaka and Susruta were prepared at a very early age, probably from the third to the ninth or tenth century before the Christian era. This conclusion is arrived at from the following considerations:

"1. They were written in the most ancient form of construction of the Sanscrit language.

"2. They were considered to be the production of divine beings, and mentioned by ancient authors.

"3. These medical works must have been written at a time when there was no prejudice of caste, and looking at the sun or stroking a cow was considered sufficient to purify a person who had touched a human bone.

"4. In Charaka the names of the Munis were mentioned, who flourished before mythology was introduced into the Hindu system of religion. They subsequently had in connection with the names all their gods who were afterward most probably introduced by degrees as the various objects and operations of nature were defined and named.

"5. The authors or compilers of these two systematic works on medicine appeared to have flourished in an heroic age, or previous to that in which the Mahabharata, the great epic poem, was written, as they are mentioned in several places of that work, which, according to Wilson, was composed about the second century before the Christian era."

These works are to be regarded as summaries of the knowledge of medicine which was possessed at the time and were probably compiled from medical works previously existing, as the names of various ancient physicians are mentioned. The Hindus made many researches into the chemistry of medicine, and they had a long list of medical plants with the properties thereof, natural salts, and knew of the composition of various alkalies and sulphuric, nitric and muriatic acids. That Hippocrates derived assistance from the Hindus is evident; that he was a great traveler, is mentioned by Galen and Mercurial. In fact, the very names of the medicines used by the Greeks of the Hippocratic era showed their Oriental origin. The practice of the medical art by the Egyptians, at first undoubtedly connected with embalming, is certainly derived from Brahministic lore, and from them in turn it extended to Greece. The Greeks evidently regarded the Egyptians as the first instructors of mankind, notwithstanding they gave themselves due credit for improving and perfecting the knowledge derived from them. Plato says, that "whatever we Greeks receive from the barbarians we improve and perfect." In the Book of Genesis we read that Joseph commanded the *physicians* in his service to embalm the body of his father," which they executed according to the order in the space of forty days.

I referred a few moments ago to the fact that the Ayur-veda, from which the Charaka and Susruta were compiled, were believed to be of divine origin, but we must remember that all ancient countries had faith in the divine origin of the medical art. "The art of medicine," said Cicero, "has been consecrated by the invention of the immortal gods," and we find in the works of Galen a statement that the Greeks attribute the invention of the art to the sons of the gods, who had been instructed by the gods themselves.

The first Egyptian author is said to be Hamon, who was believed to be Hamon the First, of the first Egyptian dynasty. Zoroaster was the next. Pliny, on the authority of Aristotle, says that Zoroaster lived six thousand years before Plato. After Zoroaster came Thot or Thouth, whom the Greeks placed among the gods and named Hermes, and the Latins Mercurius, and who is the same, according to some authors, as Shem, the son of Noah. Thot, or Taautus as he was sometimes called, was allowed to be one of the counsellors of Saturn, and M. Bouchart has endeavored to prove that Chronos or Saturn was the same as the Jewish Noah. But however uncertain the ancient chroniclers may be on this subject, they agree that Hermes or Mercurius was the author of medicine among the Egyptians, a superstition which has been disproved by the fact that a knowledge of medicine existed, as has been already stated, for many centuries among the Hindus. But I have no desire to confuse you by passing into a discussion of Egyptian and Greek mythology whereby Osiris and Isis were said to have originated medicine, and that Mercury was nothing more than secretary to Osiris and Isis. Indeed, if we undertook to mention seriatim all of the ancient gods and goddesses to whom have been attributed the invention of medicine, the entire time of this lecture would be taken up on account of mythology rather than the profession of medicine. It is somewhat unfortunate that the ancient medical authors, such as Diodorus and others, following the customs of the time, attributed to various gods the introduction of various medicines. It is not astonishing that the poets, with that license which they have been allowed in all ages, should have done so, but the authors of scientific treatises seem also to have been overcome with the spirit of the time. It is probable that Æsculapius, whom the Greeks placed among the gods, was a real personage, although there were several of that name, and confusion might easily result. Cicero said that there were three Æsculapii, of which the first, he said (that one which the Archadeans worshipped) was the son of Apollo. This is the one who invented the probe to probe wounds and apply bandages. The second was the brother of the second Mercury, who was killed by Jupiter. The third was Arsippus, who invented purging and was the first to pull teeth. Neither shall we enter into speculation as to whether Machaon and Podalirus, the two sons of Æsculapius, were respectable physicians and surgeons, and whether Machaon was the older of the two brothers. It is certain, however, that Homer always mentions Podalirus first, nevertheless Machaon, who treated Menelaus, was the more esteemed.

Passing this heroic age we come to the age of Hippocrates, and here it is that the science of medicine became established as a science, and especially the everlasting principles upon which a knowledge of disease is founded, namely, on the observation of actual cases. Although it is not at all probable that the Greek temples were the first hospitals, yet it is to be remembered that in the Æsclepion Hippocrates on the Island of Cos examined the recorded observations of his predecessors and placed in enduring form his own immortal observations. There was reason why at this time the science of medicine should reach a high state of development in the latter part of the fifth century ante-Christus. This was one of the most remarkable epochs in the intellectual development of the human race. "The contemporaries of Hippocrates were Pericles, a famous statesman; Æschylus, the tragic poet, Sophocles, Euripides, Aristophanes, Pindar, the philosopher Socrates with his distinguished disciples, Plato and Xenophen, the venerable father of history, Herodotus, and his young rival, Thucydides. In beautiful statuary, there was Phidias, with his illustrious pupils, and many other distinguished names who have conferred immortal honor on the age in which they lived and exalted the dignity of human nature." (Adams.) Both Strabo and Pliny assert that Hippocrates obtained the rudiments of his knowledge from the reports of cases collected in the Æsclepion of Cos.

I shall not at this time and before this audience attempt to give an eulogy of the life and character of Hippocrates, as that has been attested by all succeeding time, but his influence on medicine, it must be confessed, is unsurpassed, and it is admitted today by the best medical philosophers that medical practice at the close of the nineteenth century more closely approaches that of the Hippocratic period than at any previous time. Why, indeed, should not the practice of the art have its standard placed at the same time, as the standard of statuary and eloquence and poetry have been established? As no poet in modern times exceeds Homer, no sculptor of modern times surpasses Phidias; and as no orator of modern times surpasses Demosthenes or Pericles, so no physician of modern times surpasses Hippocrates in his deep knowledge of the philosophy and general principles of the understanding of the medical art. I admit, however, that I myself would rather be treated by one of our hospital internes of the present day than by the prescriptions of Hippocrates; but I speak of the principles which were developed by that great mind who wrote that magnificent series of aphorisms which commence, "Life is short, and the art is long; the occasion fleeting; experience fallacious, and judgment difficult."

The physician of the time of Hippocrates treated his patients on the field of battle, but mostly in hospitals; all chronic diseases were carried to the hospital, and this custom was not abolished until in the time of Augustus, when by a decree, the Greek physicians were made slaves and subject to the caprices and whims of their masters.

We may trace the first education of physicians from the earliest times in a direct line from the Hippocratic temples to the school of Alexandria, and thence to Italy; and under the bright skies of Greece, Asia Minor, Alexandria, and Southern Italy, learning was greatly encouraged and wisdom much increased; but the tyranny of the Romans became fatal to further advancement, and it is seen that absolutely no progress in medical science was made from the time of Galen in the second century down to the medical schools of Salernum in the eleventh, Padua and Bologna in the twelfth, and Montpelier in the thirteenth centuries. The greatest latitude was given to the study of anatomy at the old Alexandrian school under the wise reign of the Ptolemies. Erasistratus, who had dissected animals almost without number for the purpose of establishing his anatomic discoveries, was finally given direction by Ptolemy-Soter to dissect the bodies of living criminals condemned to death, and it is said that over two thousand were dissected under this rule by him and his coadjutors. This was barbarous, but it established certain truths. It was the foundation of the true science of anatomy as at present understood, and the nomenclature given at that time still exists. The science has progressed; the world has generally progressed in wisdom from that until this time; but there always have been obstructionists, that we are not exempt from the general rule is evident when we see grave and reverend gentlemen straining every effort to prevent the march of science and arrest its development by the stopping of experimentations on guinea pigs or white mice. History will again repeat itself. If the law of our country put its strong hand to stop the physiologic laboratory, to stop experimentation, to stop further progress, what our more ancient brethren in Rome experienced when their scientific studies were stopped and themselves made slaves, mere body servants, will be repeated if the proper members of the profession shall not be allowed to prosecute those needful investigations even at the expense of some of the lower animals and reptilians.

To return, however, to our theme, the profession of medicine was practically suppressed during the long period from the second to the twelfth centuries, a knowledge of the subject being confined to the cloisters, and the priests themselves scarcely daring to exercise it except as a part of religious ceremony in their clerical ministrations. The establishment of the universities in Southern Italy, followed by those of Padua, Bologna and Montpelier, inaugurated a new era, but it may be truly said, however, that it was not until the middle of the fifteenth century that a real revival took place, and even then physicians were not recognized as such for a considerable period. A practitioner of the art was either a specialist devoting himself to cures of hernia, or cutting for stone, or else he was a priest and used the medical art as an adjunct to his office, or a barber-surgeon, and as such obliged *nolens volens* to accompany armies in the field. Nor has there been at any time since, a single period when it may be said that the profession of medicine has jumped at a single bound into distinction and a clearly defined position. On the contrary, its growth has been gradual and its recognition likewise gradual. The great discovery by Harvey of the circulation of the blood; the discovery of the use of the microscope; the increase of knowledge of the operations of the organs of the body; the increased knowledge brought about by geographical discoveries and bringing into view certain herbs and chemicals; the discovery of the laws of generation, of animal life; the discovery of the science of bacteriology, or rather its completion, for it too, has come about by degrees, have each, as they have come to the knowledge of the laity, served to place medicine on a firm and enduring basis as a distinct profession.

Quacks have existed from time immemorial; sects have sprung up from time to time, but there have ever remained solid truths, unshaken by the waves of popular clamor, unchanged by the lapse of time, and this has served to maintain a system of medicine practically unbroken from the Hippocratic age down to the present time. Of the quacks that have flourished, there needs little to be said. Some of the most monstrous propositions have been eagerly swallowed by a public ever thirsting for novelty and sensation; and when one has served its turn as a confidence scheme, it is soon succeeded by some other. The same may be said about the sects in medicine which are based on one idea. Each may have some isolated fact as its underlying basis, but having no connection with the broad science itself and therefore generally useless.

I may refer, first of all, to a new sect denominated

Christian Science, which I believe to be unchristian because it is not humanitarian; nor is it scientific, because it is opposed to the known laws of nature. It has an isolated fact, which is the power of mental influence over disease. It is well known that by hypnotism or mental influence we may exert sometimes a salutary, sometimes a harmful effect on a human mind throughout the body, whereby changes more or less permanent in character may occur. That it may do so in those cases where a delicate balance exists between life and death is extremely doubtful. In the presence of those poisonous agencies which destroy life, such as the venom from reptiles, vegetable poisons such as strychnia, animal bacteria such as from malignant diphtheria, we know that no mental effect whatever can be of sufficient force to arrest the fatal process by which life is destroyed. So then in elevating such a sect to the system of medicine we are committing even a greater folly than our predecessors did when they attempted the apotheosis of Hahnemann and his pellets, or "dilute moonshine," as Oliver Wendell Holmes was wont to call them. I do not appeal here to prejudice, but simply to reason and common sense. It is a fact that the more a substance is diluted the weaker it becomes, the Hahnemannic teachings to the contrary, notwithstanding. If it were otherwise, you had as well shut your eyes to all that occurs in the chemic laboratory; as well admit that an alkali is an acid, or say that no new compound would result on placing a basic metal in contact with an acid.

The newest fad of all, without that connection which enables it to be called a science, is the doctrine called osteopathy. It teaches in brief, according to what I have read concerning it, that all diseases originate in the bones. So far as osteopathy is concerned, the liver is a myth, the gall bladder a toy balloon and the existence of the heart itself a fiction. All known facts in physiology are of no use to the modern practitioner of the art of osteopathy, for by manipulation of the bones and joints he can cure all ills and remedy all diseases to which human flesh is heir. The little morsel of fact contained in this doctrine is that relating to muscular movement, stimulation of the circulation of the skin; in a word, *massage*, a well-known remedy handed down by the ancients from the earliest times. A single remedy, a single method may be adapted for certain affections; may be admirably suited for certain conditions of the body and should be used under appropriate conditions. So, some of the followers of this sect have begun to formulate rules, imbued with the belief that it is the one idea alone which constitutes the sum total of medical science, and its followers have petitioned the legislature of this State to be excluded from the laws governing other practitioners in medicine and surgery, that they may escape that examination which all other practitioners of medicine, including the sectarians, are obliged to submit. I say it in all kindness, I speak it in all sincerity, when I say in this presence and before these young men here assembled, that we should never recognize any sect in medicine as a distinct and separate branch that refuses to accept the established facts governing the generation, the growth, development and life of the human body. Our idea of life itself involves an idea of change. The juices that flow in plants, the blood that courses through our veins, the fluids in the lymph spaces and lymph channels, all these must circulate, all these must change, or else the plant or body becomes dead and sinks into decay. A knowledge of the forces governing these changes, the laws by which the fluids themselves are formed, the process by which the tissues are regenerated and changed must be known, must be understood, and that knowledge is essential in the understanding of disease. "How can anyone," says Celsus in the second century, "cure a disease when he knows not its cause." "He who understands the cause of disease is best able to cure it." If this statement was true in the time of Celsus, it is true at the close of the nineteenth century and the principle is the same.

Specialism in medicine.—I would not have you understand that anything which I have said in relation to sects in medicine applies in any degree to the practice of well recognized specialists. It is understood that the field of medical science is now so broad, so vast, that no one person can grasp it in its entirety and keep in perfect touch with the advancing knowledge of the time in these several departments; and so in our days the specialist has sprung up again, although it must be remembered, that in the brighter days of the ancients, in the days of the Alexandrian school, specialism had developed to an unprecedented extent, and to a degree which worked its own self-destruction. A man in those days had to have about thirty physicians, one for each class of ailments from which he might suppose himself to be suffering. That was specialism run mad. In our day we may say that there are a few defined and distinct specialties having a legitimate right to exist. It is, however, a fact that the specialists are those who have devoted a period of years (say five or six as the minimum period) to general practice, as without the knowledge which comes from experience the specialist is apt to fall into error. He will examine some particular symptom, but in the range of his specialty he will forget all about the man himself. It is, as a politician once said, that he knew a man whose vision was so acute that he could see a fly upon the barn door but could not see the barn door itself.

Seriously, in order to make a perfect specialist one must be able to make a diagnosis of any of the diseases of the body. Having a knowledge of the whole, he can give each symptom its due weight, and then with the special knowledge which he possesses as to the treatment of the particular organ under observation he will accomplish the most satisfactory results. It is demoralising for a young man to take up a specialty immediately after leaving college. It makes him narrow and untrustworthy. The family practitioner, that is, the general practitioner, has a love and close friendship with his clientèle which, perhaps, while not altogether denied him, are still quite foreign to the specialist. The family consult a special practitioner because they are obliged to, whereas they often go to the family physician as they would go to a friend about matters perhaps which are only semi-professional, and the loss or absence of friendship—I mean close friendship—is a great loss to any man, and especially to a young man just making his start in the world.

Let me refer briefly to the status of the profession at the present day with regard to medical education. It is known to most of you no doubt that a great change has taken place in the last ten years. Ten years ago but a few of the medical colleges in this country required an examination as preliminary to the study of medicine. They trusted entirely to the doctrine of the survival of the fittest, and expected that a man's success after leaving college depended entirely upon his industry, his energy, natural ability, not less than upon his special knowledge. This state of things no longer exists. All of the best schools in America require a preliminary entrance examination. Some of them extend this requirement to an examination equal to the requirements of admission to the sophomore year of the academic department of a literary school, and others have extended it to the junior year. At the same time there has been a lengthening of the courses of study until now from seven to eight months are required in most of the schools, and some of them have extended the course to nine months. All this extension means additional expense to the medical student; additional expense means the limiting of the numbers in the classes, so that the overgrown classes of a few years ago are not to be expected in the future until we begin to draw students from Europe. Besides that, the profession itself has been overcrowded until the opportunities for remunerative employment have become more and limited; hence the interest of the profession, not less than the scientific interest, required the raising of the standard. Not every man has the mental make-up, the courage, the industry and the peculiar temperament to make a successful physician, even if he is imbued with the high ideals I have set forth. On this point it would be well if our young men took some unprejudiced advice before engaging in a business for which they may find their entire inadaptability when it is too late and thus become professional misfits. Tact, gentleness of manner and amiability of temper with just enough firmness of purpose are characteristics of the successful physician and these seldom come to a man in full measure unless natural to him. They can not be acquired and suddenly put on as one would put on a new suit of clothes. These characteristics must be part of the man himself and a careful study of the character of the many successful physicians shows it. When a young man is found corresponding with this ideal he should be encouraged to study medicine.

But what will become of the physician in the country, away from the larger towns and villages? It is easily seen that his preliminary and regular medical education will cost a vast sum, let us say a thousand dollars a year at a moderate estimate. If now we add to the cost of the collegiate education four thousand dollars, we will see that even at a moderate rate of interest the capital invested will not justify a man in studying for practice in a place where his income will be limited, so that if one enters the profession from this time on, it must be with the distinct understanding that he enters it for his own sake, and not for the sake of pecuniary reward or profit, as the same amount of capital otherwise invested would bring much greater returns. It is natural, then, that we shall expect the physician of the future to be farther removed from the commercial elements which enter into his choice of a profession; that he will be more spirituelle, actuated perhaps by a higher sense of humanity, although it must be said in favor of our profession that, as a rule, they have always been actuated, in the past, by the highest regard for their profession. In fact this sentiment has come to be an abuse, has grown to such a degree that other ranks of society are becoming pauperized. I refer particularly to the so-called dispensary evil.

The dispensaries were originally founded for the benefit of the suffering poor, a worthy charity. Today they are being utilized by not only the suffering poor, who are entitled to them, but by the avaricious and greedy and persons whose pecuniary circumstances in no wise render it necessary for them to seek gratuitous advice, and a reaction is now coming on which will certainly lead to the limitation of these abuses, if it does not go further. In one State the aid of the law is sought to be invoked to prevent persons who are not entitled to the benefits of public charity from receiving it. No other profession is called upon for so much gratuitous service to the poor as the medical profession, and as a rule the service is given cheerfully and promptly. I would like the laity to pause for a moment and ask themselves if they know a single profession whose members regularly and persistently from week to week, give their services gratuitously to hospitals and dispensaries, or to institutions of a similar character. As a rule, the doctor in any community is fully abreast, in general information, with the best citizens of that community, and in America he has no reason, at the present time, to complain of his social status. So far as worldly goods are concerned, any practitioner of ordinary ability may be able to live respectably and attain a moderate income. He must never expect to be rich. The rich practitioners as a rule are those who have become so by fortunate marriage relations or lucky investments. Few of them have become rich from incomes derived from their practice. There are many who have acquired a moderate competence, and there are some exceptions to the general rule. This may seem an unpoetic view of the situation, but it is the truth. I had rather picture to you a doctor passing out among the people on his rounds with a shining, smiling face, beloved of everybody, respected of everybody, the admired of a few and the companion of the wealthy, but truth in this manner is inelastic; it is inexorable.

Even a physician in the public service does not receive the same credit as his brother officers in the line. Although the records show that the mortality in the medical department is as great as that in any other branches of the service, and it is known that more men are destroyed by climatic diseases in time of war than are destroyed by the bullets of the enemy, and that the most important means of preserving the strength of the command is to preserve the health of the troops engaged; yet the medical man, not being responsible for any of the miliary movements, can have attached to himself but a modicum of that military halo which surrounds the officer of the line. This is inherent to his profession, and as it is a true statement it may as well be recognized in making up your minds to enter this branch of the profession.

We have eccentric characters in our profession, and perhaps more than our share of them, but it is scarcely fair to gauge the entire profession by the Sangrados of La Sage, the characters of Molière, or the Abernethys of real life. Our profession is not exempt from a few wolves in sheep's clothing, who are treacherous and tyrannical, unkind to their fellows and assassins of character, but these are exceptional and I believe we have less than our proportion of them as the professions go, but my earnest desire is to see the time when only those study medicine who have *natural* fitness for its practice.

In this cursory view which I have given of the medical profession as it was and as it is, I have kept way from entering too far certain by-paths which, owever pleasant and amusing, are less instructive. I ave given you these views as being appropriate truths o spread before any gentleman about to enter the vorld with the choice of a profession yet before them, nd to reiterate the words of old Burton, as true today s when they were written over two hundred years go, that among the professions "the clergy has the nost honor, physicians the most learning and lawyers he most money." I might add, and I think it will e admitted, that of the three professions, that of the hysician is the most laborious and the most exacting. f, then, with these facts before you, you choose to ecome medical pupils and enter the temple devoted o medical science with a view of giving your life to t, let it be understood that you are entering it from ure love of science, for love of humanity, and for he effects upon yourselves of a life of self-abnegaion. You may forego visions of wealth and cease to lream of political power or prominence, for these sellom come to the practitioner of medicine. Indeed, n the metropolis of this country at the present day here is a law on the statute books excluding a physiian from occupying the position of president of the oard of health, the very place one would think a ractitioner of medicine would be most useful and erform the greatest service. Let the medical man e content within his appropriate sphere to devote imself to that proper study of mankind, which is nan made in the image of his Creator, and you will ave the knowledge that although your life may be vell spent, characterized all your days by uprightness nd virtue, yet the pomp and panoply of circumstance vill never be accorded to you, and when you sink to est, your bier may be surrounded by the weeping aces and falling tears of the poor whom you have ided in your lifetime, but the great bulk of mankind vill pass on as if you had never existed. Perhaps his is true of men in general; but if the student be mbitious, it is well that he pause and reflect and face natters as they exist, rather than start out with too oseate visions of what life has in store for him. If e adopt the humble yet noble profession of medicine, e adopts a laborious profession. With all its disadantages, if they are disadvantages, it may be said hat the profession of medicine is eminently respecable; its practitioners rarely suffer from want; they re rarely compelled to beg for bread, and they are reated with reasonable respect by their fellows, for as ew of them know how soon they will be called upon o require their services, that anticipatory gratitude orn of a lively sense of favors to come is extended o the physician.

But there *are* pleasures connected with the physiian's life; at times real happiness when a distinct riumph is made over the arch enemy of mankind—lisease; and to increase these triumphs is the contant aim and life study of the physician.

Combined Ileus.—Hochenegg has observed four cases in which he occlusion was caused by several constrictions from adhernces involving the small intestines complicating a cancerous tricture of the transverse colon. As the removal of one did ot bring relief, the others were sought and found. In one ase there was an ectopic testis; the patient recovered after the ourth operation. In all, the transverse colon was much thickened, while the rest of the walls of the large intestines were ormal. In operating the obstruction in the small intestine nust first be removed and colostomy established, proceeding ater to the ablation of the carcinomatous tumor of the large ntestine.—*Wien. Klin. Woch.*, December 23.

ORIGINAL ARTICLES.

THE DIAGNOSIS AND TREATMENT OF URETHRAL STRICTURE.

BY EVERT E. TRACY, M.D.

CHICAGO, ILL.

For convenience of classification, urethral strictures are considered as being of large, medium or small caliber; either plastic-exudative or fibrous in in character, and may at any time become spasmodic. Within the folds of the urethral mucous membrane at the point of stricture will generally be found gonococci, and sometimes at this point there will also be found one or more pockets of pus, which, when situated in the deep urethra, may cause chronic prostatorrhea, or prostatic abscess.

A stricture of large caliber may be defined as any size larger than 29 F. situated either in the deep or pendulous portion of the urethra. This form of stricture will often be overlooked, from the fact that the urethra seems to be of normal caliber, the act of urination being performed without difficulty, and the presence of a stricture only suspected from the slight discharge of glairy mucus observed by the patient, principally in the morning, though sometimes during the day, and often accompanied by pain in the lumbar region, for which he seeks medical aid.

By examination with sounds, in such cases, it will be found that they are passed with but little difficulty until about 28 or 29 F. is reached, when a distinct resistance will be felt, which is caused by contact with the stricture, after the passing of which and upon withdrawal of the sound a few drops of pus or mucus will follow; and upon microscopic examination these will often be found to contain gonococci. The same symptoms which accompany stricture of large are also found in stricture of medium and small caliber, although more pronounced.

Upon examination with the endoscope, which I always make without the use of a local anesthetic (as cocain causes discoloration of the membrane so that the examination is unsatisfactory. I prefer glycerin as a lubricant, as any other substance will obstruct the view so that a perfect picture can not be had). The mucous membrane of the urethra will appear about normal until the point of stricture is reached, when a decided difference in its appearance will be observed. The mucous membrane is now found to be very red or granular at the point of obstruction, showing a plastic exudative secreting pus (plastic-exudative stricture), or thence fibrous bands secreting mucus (organic stricture).

By means of the sound and endoscope any abnormality of the urethra can be detected.

I have always considered Otis' metallic bulbous bougies excellent for locating a stricture, as they can always be rendered sterile.

I never use the ordinary flexible linen boule, as it is impossible to render it aseptic. All other diagnostic instruments are only auxiliary to the sound and endoscope, as with the sound, if properly passed and manipulated, the slightest resistance can be felt and the stricture located as easily in the membranous as in the pendulous portion of the canal, and then by the endoscope the diagnosis can be confirmed, as to the character of the stricture, whether simple plastic-exudative or fibrous organic.

After having made a diagnosis as to the size and character of a stricture it is easy to decide on a plan of treatment. From a pathologic standpoint, stricture varies. It begins as a thickening of the mucous membrane with a deposit of plastic exudate on the deep connective tissue; later, it develops into a fibrous mass which occupies the submucous tissue and extends into the underlying tissue beyond, thereby becoming the dense fibrous organic stricture.

Some plan of treatment should be devised to cause absorption of this mass.

That form of stricture made up of plastic exudate, either of large, medium or small caliber, I divide into two stages: 1. That which easily yields to the sound and secretes a small amount of pus or blood, when the sound is withdrawn, may be considered the first stage of plastic-exudative stricture. 2. The more organized this plastic material becomes the greater is the sensation of resistance to the sound, and as this material is becoming partially organized, instead of clear pus following the withdrawal of the sound there will be pus mixed with mucus, or clear mucus, in which the gonococci will invariably be found. The same may be called the second stage of plastic-exudative stricture.

In several cases at this stage of the disease, I have found, after introducing a sound and breaking through this formation, that from fifteen to thirty drops of pus followed its withdrawal. When this form of stricture is located in the membranous portion of the urethra the gonococci which lie in the submucous tissue just behind the stricture easily find their way into the prostate, setting up a chronic prostatorrhea or prostatic abscess. In these cases, by introducing the sound into the urethra and making thorough digital examination of the prostate by the rectum, the size and hardness of the prostate can be felt and mapped out, and any fluctuations easily perceived, if pus be present. The prostate lying between the finger and sound can be firmly compressed, and any pus or mucus contained in the ducts of this organ forced out.

Organic stricture of any size, when examined by the sound gives a distinct sensation, to the touch, of dense unyielding resistance. In this form of stricture, after having passed the largest sound which the stricture will admit, it will be found that the next size will meet with a distinct resistance and can not be passed without a great amount of force, which should never be employed.

In the last few years I have adopted a special line of treatment for stricture, especially the plastic exudative. After having located the stricture, and decided as to its character, the urethra is anesthetized with a 20 per cent. solution of cocain containing 5 per cent. of carbolic acid. The object of adding the acid is, 1, to preserve the solution of cocain, and prevent its decomposition by standing, and this is effected so thoroughly that a solution six months old is fully as efficient as a solution freshly made; 2, to further asepticize the proposed point of operation; 3, the acid is a local anesthetic and its addition thus intensifies and prolongs the anesthetic effect; 4, the addition of the acid seems to assist in limiting the local anesthetic action of the cocain, in other words, it diminishes the systemic effect.

The solution is applied directly to the mucous membrane in the following manner: A probe about five inches long and thoroughly roughened is tightly wrapped with cotton for about two inches and is then saturated with cocain carbolic solution, but care must be taken that no excess is allowed to remain. An endoscope is then introduced to or a little beyond the point to be anesthetized. The cocain carbolic probe is then introduced through the endoscope and held in position, while the endoscope is removed. It is allowed to remain for ten or fifteen minutes, when it is removed by turning to the right as the probe is withdrawn, that is, it is turned in a direction to wind the cotton tighter. If this method be followed and the end of the probe be sufficiently rough, there will no danger in losing the cotton. In this way anesthesia will be produced which will last a sufficient length of time to allow any ordinary urethral operation.

Under this form of urethral anesthesia a complete examination can be made with the sound, or any other instrument necessary for diagnosis, or a complete internal urethrotomy performed without giving any pain to the patient. In the use of this method, regardless of the strong percentage of cocain introduced into the urethra, I have never had any bad results.

However, knowing the susceptibility of some patients to cocain, it is always well to watch the pulse for any untoward effects. The good results obtained in the use of this method should certainly give it a standing far above the old method of injection, which is not only dangerous but does not always give complete anesthesia.

Allowing that five drops of this solution be used, which would contain one grain of cocain, at least one-half of this amount would remain in the meshes of the cotton. Of the remainder, but one-half could possibly be absorbed in the system, which would be but one-quarter grain.

In the treatment of plastic structure of the first and second stages, I have confined myself to the sound and urethral irrigations with hot water. The patient is supplied with a No. 8 F. soft rubber catheter, in a 5 per cent. solution of carbolic acid, and after instructing him in the aseptic method of using hot irrigations, he is directed to take one irrigation morning and night.

Every two days, sounds should be passed at the physician's office, beginning with two sizes F. smaller than the stricture and carrying them if possible one size above the stricture. When the sound is in the urethra external massage is made over the diseased portion. If after sounding there is a discharge of pus, particularly if it contains gonococci, an injection should be used of 1 to 5 per cent. nitrate of silver.

When stricture is situated deep down in the membranous portion, I not only employ deep irrigations, injections and sounding, but also massage of the prostate by rectum, either with or without the sound in the urethra, in order to force out any mucous or pus liable to collect there.

After this treatment has been carried out for some time a decided improvement will result, and after a few months the patient will be discharged with a normal urethra.

In old organic strictures, however, this line of treatment will not produce such good results, unless carried out for a long time, and even then an internal urethrotomy is often necessary.

Internal urethrotomy simply converts a circular into a linear stricture, and although it gives the urethra a normal caliber, the stricture still remains in another form, and the normal columnar is changed into pavement epithelium; for this reason this operation should never be performed until other means have failed.

In that form of tight stricture in which we are not able to pass even the smallest sound and the stricture can only be passed by a filiform bougie, I have had good results by the method advocated by Sir Henry Thompson, namely, passing a filiform bougie and allowing it to remain until by its constant presence, pressure atrophy is produced, whereupon a large instrument, a gum elastic bougie, can be introduced. In one case of the kind, by the use of this method I was finally able to introduce a number 16 F., after which by gradual dilatation and hot irrigations I gave the patient a healthy urethra.

In any form of stricture this method of treatment has always given good results. The less organized the exudate the more easy it will yield to treatment, and even in the dense fibrous form of stricture, if the treatment be continued long enough, a healthy urethra can often be obtained without internal urethrotomy.

82 Maple Street.

REPORT OF CASES OF TUBERCULOSIS TREATED WITH ANTIPHTHISIC SERUM T.R. (FISCH).

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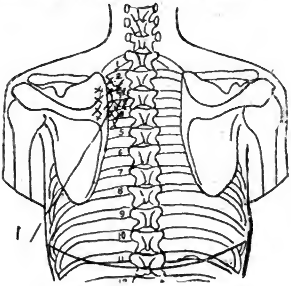
The attention of the profession having been quite generally called, of late, to the serum treatment of tuberculosis and some rather glowing reports having been made I desire to add my conclusions. drawn from a limited number of cases. Through the courtesy of the John T. Milliken Co., I was early provided with their antiphthisic serum T.R. (Fisch), which has been described in previous papers published in the JOURNAL. I confess to have entered upon the treatment of tuberculosis with this serum with much confidence. The great value of antitoxin in the treatment of diphtheria inspired the hope that a serum for tuberculosis would prove equally effective. How well this confidence was placed must be judged from the following cases:

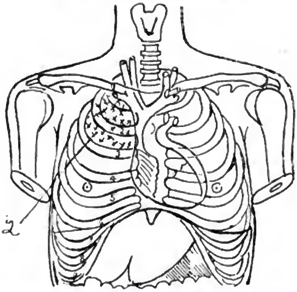
Cass 1.—C. E. M., aged 40, first consulted me Oct. 26, 1895, and gave the following history: He had la grippe in 1894, after which his cough, which had troubled him somewhat, became much worse. Tuberculosis of upper portion of right lung was discovered in June following, and bacilli at that time were present in the sputum. He was at once sent to Colorado, where he arrived June 29. At the date of his visit to me his cough was dry, harsh and frequent, with very little expectoration; voice husky. Upon examination tubercular infiltration was found in the upper part of the right lung anteriorly, and slignt infiltration of left lung posteriorly. There was tubercular thickening and slight ulceration of right side of the larynx involving right vocal band. Under lactic acid treatment and climatic influence the tubercular laryngitis improved and the slight ulceration healed.

Nov. 17, 1897, he again consulted me for examination and treatment. At this date there is tubercular infiltration (fibroid) in right lung as low as third rib; also considerable fibroid degeneration in left lung. Cough dry, harsh and troublesome, with but little expectoration. Bacilli present in sputum, which is very small in quantity; voice husky. Weight 131 pounds, which is 17 pounds less than one year ago.

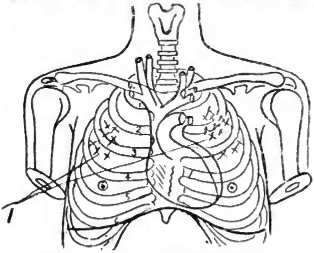
Treatment and results.—He was placed upon antiphthisic serum T.R. and for five weeks was given daily injections. Commencing with ½ c.c. it was gradually increased to the full dose. About four days after commencing treatment he suffered from a serum eruption upon the back about the points of injection, which caused much annoyance from the itching which it produced. This however lasted but a few days. For some days he seemed brighter and stronger and, as he expressed it, "had more nerve," but at the end of five weeks daily treatment his appetite had entirely disappeared, he had lost decidedly in weight, was nervous and despondent, could not sleep at night and his cough was much more frequent and troublesome. I had no opportunity of examining his sputum as he left suddenly, hoping that a change of scene and climate might help him. The result of the treatment was highly unsatisfactory. The patient steadily lost ground in every respect.



Case 1.—1, Tubercular infiltration.



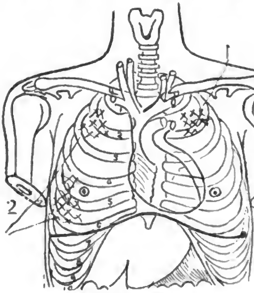
Case 1.—2, Tubercular infiltration (fibroid).



Case 2.—1, Tubercular infiltration and softening.

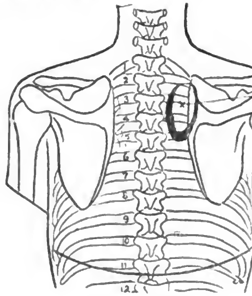
Case 2.—Miss C. age 27, consulted me Nov. 20, 1897, giving the following history. She came to Colorado two years ago from Michigan, on account of tuberculosis. At that time she was coughing badly and had lost ten pounds in weight. She rapidly improved after coming here and believed that she had fully recovered. The last few weeks however she has been coughing and expectorating much and losing rapidly in weight. Bacilli are present in the sputum.

Treatment and results.—She was placed upon antiseptic serum T.R., commencing with moderate doses and gradually increasing the amount. For two months the remedy was given daily, during which time the cough and expectoration increased; the strength rapidly failed; chills and fever developed and appetite failed. After two months the treatment was abandoned and the following entry is found in the record book. "After two months daily treatment the patient is much worse. She now weighs but 121 pounds having lost 6 pounds during this time. The cough and expectoration is much worse. Appetite is poor. Sweats at night. Pulse rapid and feeble. Has an occasional chill followed by high fever. Bacilli are present in sputum. Physical condition is much worse in every way."



Case 3.—1, Old cavity; 2, Tubercular infiltration with harsh respiration.

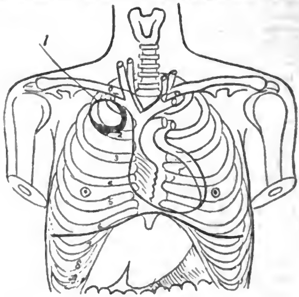
Case 3.—Miss E. O. S. age 27, consulted me Dec. 1, 1897, giving the following history. She has had a cough for eight years and came to Colorado four years ago. She has been failing for the past two months; looks emaciated, and coughs and raises much. The sputum is heavy and bacilli are abundant. At present there is no fever, no chills, no sweats, appetite is fair. She is losing in weight and strength, and suffers much dyspnea upon exercising. Condition of lungs as represented in accompanying cut 3.



Case 4.—1, Cavity.

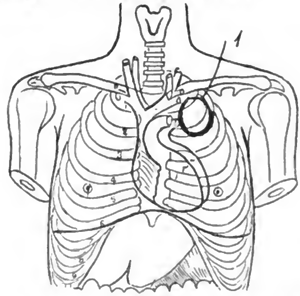
Treatment and results.—Antiphthisic serum T.R. was given regularly and daily for two months together with heart tonics, inhalations of compressed air and greatly increased nourishment. Condition at the end of two months as follows: Dyspnea not as great; sleeps better; appetite somewhat improved and cough not so bad. She still raises much heavy sputum in which the bacilli are as numerous as at the beginning of treatment. The condition of the lungs remains unchanged. She has however gained four pounds in weight. Later: At the end of three months' treatment the patient has failed decidedly. The cough and expectoration much worse, much loss of strength and weight.

Case 4.—Age 42, came to Colorado five and a half years ago, with well developed tuberculosis and in very feeble health. Patient improved decidedly under climatic influence and general treatment and remained in fair strength and health until two months since. Of late has been losing ground, coughing more and losing in weight and strength. Examination reveals a large cavity in right lung posteriorly. Jan. 20, 1898, she was given ½ c.c. antiphthisic serum which was repeated daily for four days. A diffuse serum eruption then occurred on the back causing much itching and discomfort, associated with severe pain through the lungs and in the limbs and attended with much prostration, from which the patient did not fully recuperate for several weeks. At the patients request the treatment was abandoned. Result of treatment decidedly bad.



Case 5.—1, Cavity.

Case 5.—P. D. G., age 40, consulted me December 6. He came to Colorado nine years ago on account of tuberculosis. He so fully recovered as a result of the change and climate that he soon engaged in active business, which he still pursues. The last few months he has been losing strength and weight and the cough has become very troublesome and expectoration has increased. Sputum contains bacilli. Cavity is present in upper right lung. No hemorrhages, no fever or sweats.

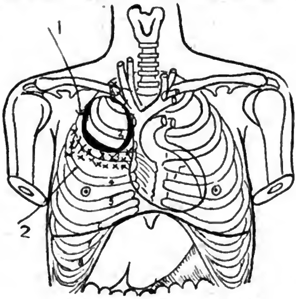


Case 6.—1, Cavity.

Treatment.—Antiphthisic serum T. R. was given in increasing doses daily, with inhalations of compressed air and increased nourishment. At the end of two and a half months no change is perceptible. Patient has not lost ground but the cough and expectoration still remain and bacilli are still present in the sputum. Antiphthisic serum is still continued in increasing doses. Later: Patient losing ground; has some fever, cough worse and strength much less.

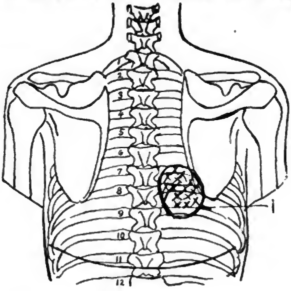
Case 6.—J. M. C., age 35, came to me for examination and treatment December 28. He gives the history of hemorrhages twelve and eight years ago. He came to Colorado eleven years since; improved rapidly and did well for seven years, when he removed to Pasadena, Cal. Here he remained for three and a half years, but his health again failing he was obliged to return to Colorado. He is now coughing and expectorating freely. Bacilli are present in the sputum, which is heavy and often colored slightly with blood. Cavity in upper left lung. No chills, fever or sweats. Has of late lost seven pounds.

Treatment and result.—Antiphthisic serum T. R. was given daily, increased gradually to full doses, and in addition inhalations of compressed air, careful exercise and full diet. Within two weeks he began to show improvement. Appetite and general vigor improved and at the end of six weeks he had gained seven pounds. Cough is better, expectoration not quite so copious but still heavy and containing bacilli although apparently not quite so numerous as before treatment. Treatment continued. Later: The patient has had a suppurative inflammation of the right middle ear. Cough and expectoration worse again.



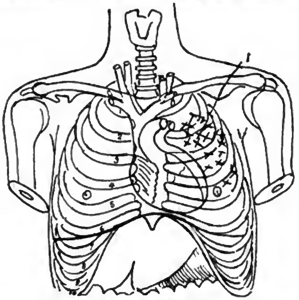
Case 7.—1, Cavity; 2, Tubercular infiltration.

Case 7.—I was called December 15 to see M. T., who gave the following history: He came to Colorado ten years ago a very sick man, having had frequent hemorrhages while in the East. He improved rapidly and became practically well, engaging in active and arduous business. Eight months since he began to fail. Business cares, anxiety and overwork began to have their effect. During the summer of 1897 he had quite a free hemorrhage, followed by hectic fever, and was confined to bed for a number of weeks, during which time he lost twenty pounds. By careful treatment, greatly improved environment and rest from business cares he improved and gained fifteen pounds. At the date of consultation he had again had a hemorrhage and, although not severe, he was confined to the bed and seemed very weak. Upon examination, a very large cavity was found in the upper right lung, with considerable tubercular infiltration all about it. There was much dyspnea upon exertion and the heart's action was rapid and weak. Bacilli present in sputum.



Case 8.—1, Area of consolidation.

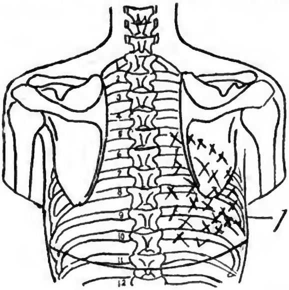
Treatment—He was given strophanthus, strychnia and antiphthisic serum T. R. The latter was given regularly for two months in full and daily doses. The patient gradually improved, gaining five pounds, the dyspnea became much less and the appetite, vigor and strength also improved. At the end of two months, however, another slight hemorrhage occurred and examination of the sputum showed immense numbers of bacilli. Treatment continued.



Case 8.—1, Tubercular infiltration (fibroid).

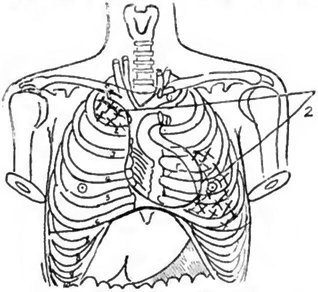
Case 8.—Mrs. E. W. S. came to me Jan. 12, 1898. Had a slight hemorrhage three years ago. She then came to Colorado, where she improved and remained in good health until four weeks ago, when she was taken with a hemorrhage which confined her to bed for three weeks. Upon examination, find considerable disseminated tubercular infiltration (fibroid) in left lung, and an area of consolidation in lower right lung posteriorly. Cough dry with but little expectoration. No bacilli could be found in the sputum. Present weight 122 pounds; weight in health 142.

Treatment.—Full diet of meat, eggs and milk with daily injections of antiphthisic serum T. R. Under this treatment patient decidedly improved in spirit, vigor and strength, and in six weeks increased in weight eight pounds. Treatment continued.



Case 9.—1, Tubercular infiltration.

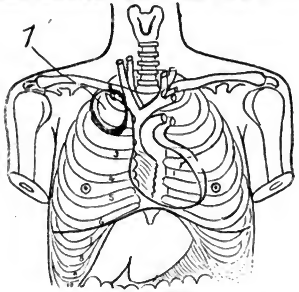
Case 9.—C. P. M., age 34, came for examination and treatment Jan. 27, 1898. He has been coughing for one year, but was very well before that, with the exception of an attack of pleurisy three years ago. He came to Colorado December 7 and at that time had lost thirteen pounds. He is coughing much and expectorating heavy sputum. Bacilli present. Had night sweats before coming to Colorado. Heart's action is weak and rapid and there is much dyspnea upon slight exertion. Examination reveals tubercular infiltration in apex of right and lower lobe of left lung anteriorly and lower lobe of right posteriorly. For three weeks the patient did remarkably well as a result of the change to Colorado and under heart tonics and increased nourishment. As improvement failed to continue, he was placed upon antiphthisic serum. After one month's treatment no improvement has been noted and no change in the condition of the lungs. Bacilli are even more numerous in the sputum than at the commencement of the treatment. Two weeks later: Has lost three pounds.



Case 9.—2, Tubercular infiltration.

Case 10.—Mrs. M. C. came from Canada and arrived in Colorado in November, 1897. Has had chronic bronchitis for a number of years. Respiratory sounds harsh and rasping throughout both lungs. Cavity in apex of right lung. Bacilli are present in sputum. Much dyspnea on exercising.

Treatment.—Strychnia, strophanthus, increased nourishment and antiphthisic serum were given. After three weeks' daily treatment, under the most favorable circumstances, with steady failure, the serum treatment was discontinued with the conviction that it was doing harm rather than good.



Case 10.—1, Cavity.

CONCLUSIONS.

Number of cases treated, 10; cured, 0; improved, 3: worse, 7; bacilli present, 9; bacilli disappeared, 0.

In considering the value of any line of treatment in tuberculosis many factors must be considered. If the patients are pretubercular and the diagnosis is based upon the examination of the blood alone, rapid improvement should be expected from a change of climate and environment, and too much credit should not be claimed for any specific treatment. When patients with tuberculosis come to Colorado, unless too far advanced, they almost invariably improve and often remain in a fair degree of health for years, if they do not entirely recover. The cases reported would seem fair ones with which to judge the value of treatment. All were long standing cases and, with the exception of two cases which did poorly, all had been in Colorado from two to six years. We may therefore exclude any gain due to climatic influence. Judging from the above cases we may say that antiphthisic serum T.R. does not cure chronic cases of tuberculosis. It does not cause the disappearance of the bacilli. The psychologic effect of daily treatments however even in these cases inspires hope and courage that leads to temporary improvement. It is possible that in incipient cases antiphthisic serum may overcome the disease. If it can be proven to be effective in early cases, thus preventing the necessity of a change of climate, it will indeed be a blessing to mankind. Such proof must come from our eastern confrères, with the careful records of a large number of cases.

RESECTION AND REPRODUCTION OF THE MAXILLÆ.

Presented to the Section on Stomatology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1-4, 1897.

BY G. LENOX CURTIS, M.D.
NEW YORK, N. Y.
FORMERLY PROFESSOR OF ORAL AND FACIAL SURGERY, NEW YORK DENTAL SCHOOL; AND INSTRUCTOR IN THE NEW YORK POST-GRADUATE MEDICAL SCHOOL AND HOSPITAL.

The purpose of this paper is to show to the profession the importance of special study and instruction in oral and facial diseases, and that these are worthy of the same consideration as is given to any of the fully recognized specialties in medicine. Until they do appear in the curriculum of the medical school, the faculty will not have done its duty toward the student. The field covered by the general surgeon is too great for a careful consideration of any part where such minuteness is required to save and assist nature in doing her work. The surgeon most capable of successful teaching in this line is he who has been a thorough and conservative dentist.

Like produces like; this applies to every department in nature. The periosteum under favorable conditions will reproduce the substance it covered. That of the ramus of the jaw will only make the thin lamina of bone which nature has originally placed there, while that of the malar and the body of the jaw reproduces a dense structure differing materially in texture.

If the function of a part be permanently lost reproduction is not a necessity, nature supplying only that part which is required. If the teeth have been extracted, to remain out, the portion of the jaw which is required to nourish them is not reproduced, but where the teeth are replaced and retained all or sufficient of the bone is reproduced and reattaches them to the jaw. I have seen such in active use for years.

The only condition I can ascribe for the removal of the periosteum is where it is attacked by disease, such as cancer, and the entire structure destroyed. When the bone alone is destroyed, as in necrosis, cystic tumors, or from pressure by resistance of a growth, as tumor of the antrum, I see not the slightest necessity for removing this natural sheath, but on the contrary every reason for retaining it. I have seen Billroth, Von Burgman, Agnew, Ashhurst, Garretson and other great surgeons resect the jaw, but they invariably employed Huyfelder's, Fergusson's or Langenbeck's method, except in cases of necrosis where but small sections were involved. Liston, Tait, Barton, Mütter and Gross also followed on these lines.

My method to obtain the best results in the preservation of the contour of the jaw is by retaining the necrosed bone in position until the periosteum has been so strengthened by the reproduction as to allow nature's outlines to be maintained, employing it as an interosseous splint. Where it is necessary to remove the bone I retain the contour of the face by gauze packing and change from time to time until the bone is sufficiently reproduced to resume its shape. This requires frequent dressing, so that the amount of pus may be kept at the minimum. The teeth are retained in position by means of interdental splints or ligatures. Where the teeth are lost I place other teeth in the opening when the wound is nearly closed, maintaining them by artificial support and allowing the bone to form around them. Where the destruction of the bone has been great and the periosteum too weak to retain the jaw in position during the process of reproduction I use an interdental splint (as employed by Liston over fifty years ago) in which the upper and lower teeth properly occlude. By hastening slowly the danger of wounding the dental nerve is materially lessened.

In 1886 I operated on a young woman, aged 23, with the following history. Four years previous, after suffering much pain in the face, which was swollen, a fistula appeared in the lower jaw and was diagnosed as being from an abscessed tooth. The gums around the tooth were swollen and inflamed; the molars and second bicuspid were extracted and the pus continued to flow. Her health rapidly diminished, menses ceased and had not returned, although constantly under medical and surgical treatment.

Examination revealed the emaciated condition of the patient. She was suffering from blood poisoning, was highly nervous and hysteric, had no desire for food and had lost the sympathy of her doctors and family. In the left inferior maxilla where the tooth had been extracted, there were granulations. A boggy condition of the mucous membrane extended all along that side of the jaw. Over the ramus it was particularly inflamed. The probe readily passed beneath the periosteum and far up along the ramus. The patient was then too sick for an operation, with a view to best results. The wound was cleansed daily to lessen the amount of pus, and for one month the patient was placed under most rigid restorative treatment with good results. I found that under the local stimulating treatment, bone had been sufficiently reproduced to strengthen the periosteum so that when I removed the dead jaw the contour was preserved. The cause of the trouble I found to be a wisdom tooth lying transversely at the neck of the jaw immediately under the condyle. This, along with the granulations and débris, was removed. The wound was packed continually until healthy granulations filled in the periosteum; the jaw, minus the teeth, was reproduced with all its usefulness. Complete restoration to health and a gain of twenty pounds in weight followed this work. The nerves and vessels in the jaw were not injured and no paralysis resulted.

Before my class at the New York Post-Graduate Medical School and Hospital, on March 25, 1893, I operated on a lad 15 years of age who gave the following history:

Three years before, while at play, he ran against a lamp post, striking the left side of his face and bruising it severely. A year later there appeared on the face, over the malar bone, a hard lump which continued to increase until it was the size of a hen's egg, preventing the boy from seeing, with that eye, objects on the ground near by without bending his head. He had not realized any special pain or discomfort from the tumor. Thinking the trouble arose from the abscessed teeth, his dentist extracted the upper, left, first bicuspid, which showed no evidence of being diseased. I diagnosed an osseous tumor of the antrum, and found that the malar and superior maxillary bones were completely destroyed by the direct pressure against them, only the periosteum remaining. Not only was the tumor directed outward, but downward, depressing the roof of the mouth and extending beyond the alveolar process against the buccinator muscle. An incision was made through the periosteum encircling the teeth, and only a small part of the alveolar process remained intact. This with the teeth was removed, the entire side of the face falling into the cavity made by their absence, so completely was the malar and the superior maxillary bones destroyed. The inferior orbital ridge and zygoma alone resisted the pressure of the tumor. A profuse hemorrhage followed its removal, but was readily checked by hot water. The wound was packed with aristol and gauze, and the contour of the face secured. The periosteum was united by sutures. Through this opening the wound was dressed until the shape of the face was permanently restored. Time of operation was twenty-five minutes.

The following day there was considerable edema which readily subsided. From day to day the dressing was changed until the periosteum could support itself, and in two weeks the case was discharged from the hospital. The antrum was douched daily until restoration was complete. An artificial denture was made to replace those lost, to give the normal fullness to the mouth. In this operation there was no external wound, consequently no necessity for ligature and no scarring of the face, which would necessarily follow had the operation been done on the lines drawn in general surgery. The wound completely healed in six weeks with no deformity of the face. I have seen the case from time to time and it is eminently satisfactory in every way.

On Feb. 3, 1893, I operated on a gentleman 73 years of age who, up to the year prior to that date, was in robust health, never needing a physician in forty years. He stated that he applied to a dentist to have the left superior wisdom tooth, which was loose, removed, it having elongated, owing to the loss of its antagonist. As the dentist was using the forceps, the patient noticed they were covered with blood, but before he could rebel against this outrage, a tooth had been extracted, which was found firmly attached and resistant. He saw that a sound and healthy tooth had been taken out by mistake. The dentist then removed the loose tooth with slight inconvenience. The wound made by the extraction of the teeth did not heal, the gums around it became swollen and inflamed and the remaining teeth on that side were soon loose and sore. In three weeks they were so troublesome that with his fingers he removed the first molar. He then noticed an opening into the antrum and granulations protruding.

About two months after, the bicuspid was extracted in a similar manner, and in two weeks later the cuspid. The entire side of the jaw became very painful; the patient was unable to sleep or take proper nourishment and had rapidly diminished in strength and health, until at this time, February 3, he was extremely emaciated, not having taken solid food for weeks, and for the past three days only water, because of the great pain in the effort to swallow.

Examination revealed that the entire left half of the jaw and cheek was infiltrated. The microscope showed epithelioma. The characteristic cancerous odor prevailed. An incision was made anterior to the right cuspid and extended back and across the soft palate to the condyle, down the ramus, and forward along the buccal surface of the jaw to cuspid upward and forward until all the mucous membrane to the median line was removed. The entire enclosed area was then resected, leaving only the external portion of the malar bone and the orbital ridge of the superior maxillary in position.

In operating, I removed a portion of the anterior lobe of the parotid gland, along with the duct. The hemorrhage was profuse, but in a moment was completely checked by hot water. The wound was dried, packed with aristol and gauze, no ligatures being employed. Time of operation twenty minutes. The patient made a splendid recovery, slept comfortably much of that night and had but slight rise of temperature. There was some edema of the face, which lasted three days. Patient received most nourishing diet and was sitting up in three days. On the seventh day following the operation, the case was for the first time dressed, no untoward symptoms arising in the meantime. The packing was perfectly dried and scarcely blood-stained; not a drop of pus was present. The wound was repacked loosely, and redressed every third day without a single complication. February 17, the patient was discharged from the hospital with instruction to douche the wound frequently. The wound made rapid progress in healing and on March 13 had almost completely closed, leaving but a single opening into the antrum, so that on March 30, the impression for an artificial denture was taken.

The patient's health had wonderfully improved, he being free from pain and sleeping soundly. He was able to resume the management of his affairs and was again in good health, continuing so until August, 1894, when he contracted pneumonia, from which he died. Two months prior to his death, the cancerous granulations appeared in the old wound. There was no disfigurement of the face from the operation, and the only inconvenience was the loss of his natural teeth, as he was unable to wear the artificial substitute.

A lad 13 years of age was brought to me in March, 1893, giving a history of complete nasal stenosis of some years' standing and a clear history of adenoids. He had been under medical care for years, the physicians failing to recognize the cause of his trouble. I have never operated on a more lifeless and waxy-looking creature. The odor from his breath and body, which was steeped in pus, was most sickening. All of the upper oral and bicuspid teeth were so loose that but for the periosteal attachment, they would have dropped out. There were large sinuses under the lips and the roof of the mouth through which pus exuded. The periosteum of the roof of the mouth was so filled with pus, that it bagged. All the bone of the superior maxilla anterior to the first molar, including the palatal plate, was necrosed, likewise the palatal bones and the inferior turbinates. The adenoids completely filled the nares and crowded into the antrum of Highmore, breaking down the walls, and advanced until the process of destruction was complete. Pus oozed from all the loose teeth and through the sinuses, nose, mouth, and out through the lachrymal ducts into the eyes. The throat was so plugged up that breathing was very difficult and ptyalism extreme. At this operation I removed what I could of the adenoids, opening the nasal passage and partially cleansing the antrums, which was done with great difficulty, as the boy took chloroform badly, owing to extreme anemia; the loss of blood was not so very great. The loose teeth were supported by ligatures until held by the new bone.

The patient made a very good recovery from the operation and in forty-eight hours the improvement was noticeable. The wounds were dressed daily and, through the sinuses, douched every hour. Recovery was so rapid that in four weeks I was again able to operate, this time removing all of the necrosed bone and thoroughly curetting the antrums.

The boy made rapid strides toward recovery and by May 1 I was able to perform the final operation, when I removed the remaining adenoids. Here occurred a profuse hemorrhage, but with peroxid and hot water it was quickly checked. Most stimulating tonics and nourishing diet were prescribed from this on. Recovery was marvelous, and in two weeks the patient was able to walk to my office for treatment. By June 1 he was dismissed cured, having gained forty pounds in weight, having regained his normal color, good appetite and usual strength. He then went to his country home. I saw him again in one year. There was no occasion for treatment; with the exception of a slight imperfection in the alveolar process, where there had been a deep sinus, the gums did not unite and a few adenoids had appeared. The only additional opening, through which I operated, was made where I extracted the left superior molar, this being badly diseased, and through which I was better able to reach the antrum.

To facilitate cleansing of the wound and destruction of the pus, I found electrozone the best of all agents for this purpose.

I have done many cases similar to those stated, and without deformity in any instance. All of them are accompanied by blood poisoning and have usually been treated for rheumatism, malaria and typhoid fever for months and even years, before the error is discovered.

This conservative method is not conducive to a fine collection of pathologic specimens, as a recovery of a part without blemish leaves only the history of the case and the statement of the patient as proof of the malady.

The student should have a chance to see in practice the methods he wishes to adopt. In this city, only recently, at our great university, no end of strife resulted from a determined and successful effort of the dental department to make a place in the hospital for their oral surgeon, with equal right to operate. This was the beginning of the end when all such institutions must of necessity adopt the same course. Why confine this work to so-called major operations, when they can be simplified to the minor class by annexing such men, skilled in dentistry and medicine alike, to the medical faculty. Let us hope that the controllers of such faculties will appreciate that "knowledge is power" and that new methods are a necessity.

7 West Fifty-eighth Street.

A CASE OF PSEUDO-MEMBRANOUS (DIPHTHEROID) STOMATITIS, CAUSED BY THE STREPTOCOCCUS PYOGENES.

Presented to the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

BY LOUIS JURIST, M.D.
PHILADELPHIA, PA.

Although diphtheria and diphtheroid diseases are of very frequent occurrence, the mouth and tongue are but rarely affected, in spite of their exposed position and liability to injury. The micro-organisms which are responsible for the deadly group of pseudo-membranous inflammations must traverse the mouth in order to gain access to those structures in which they most commonly develop their nefarious activity, yet the oral mucous membrane, where the conditions in general are very similar to those at the points of selection, is practically immune to the influence of the micro-organisms in question.

It is the great rarity of oral diphtheria that has led a number of authors to deny its existence as a primary disease, while admitting its possible, but very infrequent occurrence as a secondary manifestation.

While the case I report is, etiologically, not one of true diphtheria, since it was not caused by the Klebs-Loeffler bacillus, the invariable producer of the disease, it yet presents the clinical features of diphtheria, and but for the bacteriologic examination, would have passed as an unusual example of that dreaded malady, just as many instances of pseudo-membranous throat affections are termed diphtheritic, when in reality they are not due to the bacillus of diphtheria.

The history of my case is as follows: Late at night, July 22, 1893, I was called to Maggie M., age 20. The alarm of the family and the statement of my summoner that she was choking to death, seemed well founded. Sitting in a chair, the tongue enormously swollen and protruding as a thick mass from the mouth, the facial expression one of anxiety and suffering, the young woman presented a most distressing aspect. It was learned that some days previously the patient had had an attack of vomiting and diarrhea, which had yielded to treatment. Shortly thereafter the tongue began to swell and the present condition supervened.

The floor of the mouth and the under surface of the tongue were covered by a thick grayish membrane. The tongue was swollen and rigid; its dorsal aspect somewhat coated, but free from false membrane. There was a repulsive odor of the breath. An examination of the pharynx was rendered impossible by the intumescence of the tongue. The skin was moist and cool, pulse rapid and feeble, temperature 101 degrees.

During the next two weeks the general condition remained about the same; the membrane gradually spread to the upper and lower lip, confining itself to their inner surface, and also crept along the cheek, being particularly limited to that portion in contact with the upper and lower teeth. Frequent slight hemorrhages occurred, becoming freer if portions of the membrane were forcibly detached. During the height of the disease the submaxillary lymphatic glands were enlarged, while a well marked edema involved the entire face and neck, extending from ear to ear. Deglutition, the diet naturally being restricted to fluids, was accomplished fairly well, when the head was thrown back and the liquid poured into the oropharynx.

As the patient slowly improved, an examination of the pharynx became possible. Two oval, distinctly outlined patches were noticed on the hard palate, close to the last molars of each side, and extending toward the median line, but without coming in contact. There was no membrane on the soft palate, the uvula, the tonsils, or the palatal arches.

After a time the membrane ceased to form, the tongue diminished in size and eventually regained its normal proportions and contour.

The internal treatment was supporting. Locally, the use of hydrogen dioxid, followed by corrosive sublimate, was instituted. Steam inhalations of sodium benzoate were employed. As improvement did not follow, the inhalations were, after a few days, superseded by applications of electrozone. After thorough cleansing of the parts, pledgets of absorbent cotton saturated with this liquid were placed against the affected areas and frequently changed.

Upon my return to the city after an absence of several days, I received the following letter from Dr. Kinnier, who had charge of the case:

> I thought perhaps it might be of interest to you to know what has been the line of treatment in the case of Maggie M., since you last saw her.
>
> I believe the electrozone did good, but unfortunately there was not enough to give it a thorough trial. After its discontinuance the mouth became much worse, the peroxid, full strength, making very little impression.
>
> As the case seemed extremely urgent, I resorted to argenti nitras (grams 1.3 to c.c. 30) applied three times a week, and potassium chlorate, gram 0.32, every two hours, night and day. The result was magical.
>
> There was quite copious bleeding on two occasions, due to the ulceration on the left side of the tongue extending into a small vessel. The bleeding was of decided benefit, as the inflammation immediately subsided. There remains now only a small patch about the size of a three cent piece on the buccal surface of the right side, near the angle of the jaw.

One year later there was a distinct scar which prevented protusion of the tongue.

Regarding the course of infection it was impossible to obtain any precise data. All that could be learned was that the patient had come in daily contact, in her workshop, with a young woman in whose family there had been two recent deaths from diphtheria. The patient's teeth were wretchedly kept and the majority carious.

In order if possible to determine the ultimate nature of the case, a piece of membrane was sent to Dr. Eshner, who submitted it to Dr. A. C. Abbott of the Department of Hygiene, University of Pennsylvania, for bacteriologic study. The following is Dr. Abbott's report:

> Dr. Almstead, our assistant, has gone over carefully, under my supervision, the piece of membrane from Dr. Jurist's case of supposed diphtheria of the tongue, and we fail to find anything either in the way of bacteria or tissue changes, to justify the opinion that it is of a diphtheritic nature.
>
> The only bacteria that are present in conspicuous numbers are streptococci, and I feel reasonably sure that they played the etiologic role in the production of the trouble. There are often exudative inflammations on and about the pharynx of this origin that can not be differentiated from diphtheria

except by bacteriologic methods, and this is very probably one of them.

In view of the foregoing report the case can not be considered one of diphtheria of the mouth, but must be classed among the so-called diphtheroid affections. In examining the literature on the subject of diphtheritic inflammations of the mouth (using here the adjective in its widest or anatomic sense, that in which Virchow employed it), we find the earliest reference in the work of Aretæus.[1] The remarkable passage in the *Syrian Ulcers* in which Aretæus portrays the essential features of diphtheria in a wonderfully complete manner, contains this reference to the mouth: "When this (the ulceration of the tonsils) eats outward toward the mouth, it reaches the uvula and destroys it. Likewise it may involve the tongue, the gums and the alveoli, until the teeth become loose and turn black. The phlegmon may also extend to the throat. Such patients die in a few days from the inflammation, the fever, the fetid odor and the hunger. If, however, the disease passes through the windpipe into the thorax, it then kills on the same day, for the lungs and the heart can not endure such an odor, nor the ulcers, nor the ichor, but cough and dyspnea are developed." Van Swieten,[2] the commentator of Boerhaave, observed the occurrence of diphtheria of the mouth during an epidemic at Leyden, in 1738.

In the present century we find that Bretonneau[3] was the first to give a clear description of the disease, but he, as well as the earlier writers did not distinguish the ordinary ulcerative stomatitis, so common on the gums at the roots of the teeth, from the rarer diphtheritic form. That Bretonneau, however, did see cases of the latter is evident from one of his papers, in which he says that toward the end of the epidemic at Tours he observed eight children in the same ward seized with "*gangrene scorbutique*" of the gums of the right side. On the second day three had membranes on the corresponding tonsil, with enlargement of the submaxillary glands. In all, the borders of the tongue and the internal parts of the cheek were covered with membrane. In some cases, he adds, the disease may extend into the pharynx and larynx, a calamity which he believes to have been averted in the eight cases by the vigorous local use of hydrochloric acid.

Trousseau[4] shares the views of Bretonneau, but seems to consider extension from the mouth to the pharynx and even to the larynx as quite common. Among contemporary writers we note that Butlin[5] doubts the existence of primary diphtheria of the tongue, admitting, however, as a rare possibility the occurrence of diphtheritic inflammations upon accidental or operative wounds of the tongue. The liability of the tongue to secondary diphtheria is also small. According to Jacobi,[6] the disease may be primary.

Forchheimer,[7] in his excellent series of papers on stomatitis in the *Archives of Pediatrics*, treats of a croupus and diphtheritic form. The first is never primary, but "is always a complication of angina crouposa. The second occurs rather frequently in birds and calves, and has occasionally been observed in man." The distinction which Dr. Forchheimer makes brings up the much discussed question of the identity of croupous and diphtheritic inflammations. I have no desire to dwell upon this subject except so far as to say that there seems no longer to be any justification for the separation of those conditions into two autochthonous diseases.

J. Lewis Smith[8] states that the diphtheritic pellicle sometimes forms in the cavity of the mouth, generally in small patches except upon the tongue, where the the pellicle extends more deeply.

An interesting case, one of true primary diphtheria, is reported by Thiercelin.[9] The patient, a woman aged 30 years, complained of pain in opening the mouth, had anorexia and a little fever. On examination the lower surface of the tongue and the floor of the mouth were covered with a whitish-gray membrane. The tongue was not swollen, its dorsal surface bore a thick coat but no membrane. The internal aspect of the cheeks and the external surface of the gums, especially the lower, presented false membranes. There were also two patches on the lower lip, vestibular surface; none on the upper. At the base of the teeth there was some ulceration, but apparently not of a diphtheritic nature. The disease did not extend beyond the pillars of the fauces; the pharynx was perfectly free. The submaxillary lymphatic glands were swollen, mastication was impossible; an intense fetor and salivation were present. An examination of the membrane revealed the presence of an abundance of Klebs-Löffler bacilli, which were also demonstrable in serum cultures at the end of twenty-four hours. There were no streptococci, no staphylococci. The patient recovered.

Sevestre and Gaston[10] conjointly report a series of cases of membranous stomatitis, the features of which, according to the authors, entitle it to be considered a new clinical entity, and they give it the name of *stomatitis impetiginosa*. It attacks debilitated children, especially those recovering from measles or whooping cough. A whitish, adherent membrane, very similar to the true diphtheritic exudation, forms in the mouth, on the gums, the internal surface of the cheeks and lips. On the tongue the formation of pseudo-membrane is rare and occurs in small, elongated patches, particularly on the borders and tip. In their series of ten cases the involvement of the tongue was noted but once, in a child of 21 months. The lymphatic glands are only slightly tumefied. In nearly all instances the disease is associated with impetigo of the face. Bacteriologic study demonstrated the presence in every case of the staphylococcus pyogenes aureus.

At the suggestion of Rendu, Sevestre[11] tested the reaction of the saliva in a case and found it acid. A very curious disease, also characterized in part by the formation of a false membrane, is described by Siegel,[12] who observed it in epidemic form in the neighborhood of Berlin during a period of three years, from 1888 to 1891. The membrane is found upon the swollen and edematous tongue in the form of a yellowish, often deep black or even inky, firmly adherent layer. The gums are swollen and the teeth are loosened. Eruptions petechial or vesicular are frequently present on the legs and arms; constitutional symptoms are grave. Not rarely the disease is fatal. Siegel, who terms it *stomatitis epidemica*, regards the affection as identical with the foot and mouth disease of cattle. Owing to its rarity the proper nosologic position of *stomatitis epidemica* remains still somewhat obscure. It probably bears no relation to diphtheria.

Wharton's[13] case, a boy aged 6, had the tongue much enlarged, partly protruding from the mouth, covered with a thickened epithelium which could be stripped off without much difficulty; there was a patch of white membrane upon the inner surface of the right lip and inner surface of the right cheek, the neck was swollen, submaxillary lymphatic glands much enlarged. Bacteriologic examination revealed the Klebs-Löffler bacillus, the guinea pig succumbing to subcutaneous inoculation in seventy-three hours.

The chief points in the present paper may be summarized as follows:

1. True diphtheria, *i.e.*, a disease caused by the Klebs-Löffler bacillus, may occur in the mouth both as a primary and as a secondary manifestation.
2. Pseudo-membranous inflammations, clinically indistinguishable from diphtheria of the mouth, may be produced by other micro-organisms.
3. As far as the cases reported go, we must accord this ability to the streptococcus pyogenes and to the staphylococcus pyogenes aureus.
4. Grave septic states have not been observed in those cases where the disease remained limited to the mouth.

LITERATURE.

1 Aretæus: De morb. acut., 1 c. q. Ed. F.Z. Ermerius; quoted by Haeser, Geschichte d. Med., iii, p. 430.
2 Van Swieten: Quoted by Bretonneau.
3 Bretonneau: Des inflammations spéciales du tissue muqueux et en particulier de la diphtherite, Paris, 1826.
4 Trousseau: Memoirs on Diphtheria. The New Sydenham Society, 1859.
5 Butlin: Diseases of the Tongue. Cassell & Co., 1885.
6 Jacobi: Pepper's System of Medicine, Lea Brothers, vol. 1, p. 672.
7 Forchheimer: Arch. of Pediatrics, 1889, vi, p. 364.
8 Smith: Keating's Cyclopedia of Dis. of Children, vol. 1, p. 617.
9 Thiercelin: France méd., 1892, xxxix, p. 385.
10 Sevestre et Gaston: Bull. et mém. Soc. d. Hôp. de Paris, 1891, 3 s., viii, p. 316.
11 Sevestre: ibid., p. 343.
12 Siegel: Deut. Med. Wochenschrift, 1891, xvii, 1328.
13 Wharton Med. News, vol. ixvi, No. 15.

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ACUTE MYRINGITIS.

Presented in the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, June 1-4, 1897.

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The subject of acute myringitis is usually disposed of in a page or two in most text-books, and one of the most popular modern treatises does not even mention it, yet its widely dissimilar course in different patients, its tendency to produce serious lesions, and its painful character render the disease worthy of most careful study. Acute myringitis differs much in type, each having its own pathology, symptomatology and treatment; it is therefore convenient to divide it into simple, desquamative, hemorrhagic and suppurative varieties.

Simple inflammation of the drum membrane is caused by disease of the external auditory canal, of the Eustachian tube and middle ear, or by direct injury from foreign bodies, irritating fluids, cold water, etc. It is one of the commonest of aural maladies, the ordinary cases of slight earache being usually examples of this disease. The symptoms are usually pain, slight deafness and throbbing tinnitus. Pathologically the condition is one of active hyperemia, with serous infiltration of the layer of the cutis. On inspection the drum shows intense congestion of its upper and central portions, and the malleus may be more or less obscured by swelling. This condition usually promptly subsides under appropriate treatment, or in some cases even spontaneously, or it may progress into the desquamative form.

The symptoms in the latter case are always much more marked than in the earlier stage, pain is often great and boring in character, and deafness may be nearly complete from combined swelling and mechanical obstruction by the large epithelial masses. The epidermis macerates, becomes loose and is finally shed off in large flakes, occasionally representing the whole outer surface of the drum, and the raw corium is thus exposed; the swelling is marked from both serous and cellular infiltration, and the whole membrane becomes friable and soft. Examination may be impossible until the external canal is cleared of the shed epithelia; when the drum is brought into view the position of the manubrium is recognized only by the red lines of engorged blood vessels, and the whole fundus may have a raw beef-like appearance.

The prognosis is recovery in a few days under properly applied therapeutics, but perforations and permanent thickening are exceedingly apt to occur if the case is neglected, or the acute condition with pain and deafness may continue even for weeks. The amount of desquamated skin thrown off is often surprising, the fundus sometimes being found completely blocked with it every two or three days for a considerable period. This is one of the ways that the large dermoid masses, occasionally found in the external auditory canal, are formed.

Hemorrhagic myringitis Politzer considers a rare disease and the writer has not seen above 20 examples in his last 2000 ear cases. It seems to occur only in ears which have been previously damaged by chronic disease—sclerosis, cicatrices, dense impacted cerumen plugs, etc. The blood vessels appear to give way at one or many weak points, and myringial apoplexies result. The symptoms do not differ from those of the desquamative form, but there appears to be more tendency to constitutional involvment—fever, malaise and weakness—and deafness is more apt to be extreme.

The diagnosis is easy on inspection, the dark purple blebs, varying in size from a No. 8 to a No. 1 shot, standing freely out from the generally congested surface of the drum, or from the canal adjoining. Hemorrhagic myringitis is especially apt to run a somewhat chronic course, successive crops of blebs appearing; even under treatment the duration is apt to extend to at least a fortnight. In one case treated by the writer about eighteen consecutive blood blisters formed and were cut, and the treatment had to be continued for about a month. This case occurred as a sequel of epidemic influenza and chronic aural catarrh, and was characterized by constitutional depression quite out of proportion to the severity of the general disease; the drum finally cleared up completely without any permanent injury to hearing.

Suppurative inflammation of the membrana tympani may occur from septic disease of the middle ear or the external auditory canal, or in rare cases is purely primary, such instances not being very uncommon from sea-bathing. In the primary cases a true abscess occurs between the layers of the drum, which may break outwardly, with or without complete perforation of the membrane. Inspection may show the bulging abscess in addition to intense engorgement, or an ulcer the result of its rupture or perforation may have occurred. The symptoms are generally quite severe, the pain being more like that of general suppurative otitis in character. The prognosis is often more favorable than in either the desquamative or hemorrhagic types, a single treatment often effecting a cure.

The therapeutic management of acute myringitis is most important, as the tendency of the disease to produce permanent lesions can nearly always be obviated by proper care and the pain and discomfort promptly reduced to a minimum. In the simple acute type syringe irrigation with a warm boric or carbolic acid solution has a most happy effect; at least a pint of fluid should be used, great care being taken to cause no pain or traumatic injury. The surplus fluid should be lightly mopped from the canal with a soft cotton tuft, and the meatus loosely plugged with gauze or cotton. If the engorgement is intense and desquamation or suppuration is feared, it is my habit to lightly dust the drum with the calendulated boric acid formula of Sexton; this often appears to give great comfort and seems free from objections.

If the Eustachian tube and the middle ear are involved their treatment is most important. This should consist of sedative sprays applied to the nasopharynx, preceded, if much swelling exists, by the very cautious use of a weak cocain solution.

When engorgement is largely limited to the tube and post-nasal region—an acute Eustachian salpingitis of which the myringitis is a sequel—the cocain solution and also the subsequent wash is best applied by the syringe catheter, the utmost gentleness being used. Inflation of the middle ear by Politzer's or other method has never had any but an unfortunate effect, in my experience, when used in this disease; many cases that would have recovered without any treatment are by it converted into examples of acute middle-otitis, and it is only mentioned here in order to condemn it absolutely in true myringitis.

Desquamative inflammation of the drum is a much more serious affection than the preceding, as actual destruction of tissue has necessarily occurred, and calls for very careful management. It is of the utmost importance to entirely clear the aural fundus of the decomposing irritating masses, as their presence is a fruitful source of further mischief. Syringing should be employed as above suggested, but owing to the insolubility of the epithelial masses, their removal can seldom be perfectly accomplished by this means alone. Burnett's double-pointed screw or the writer's L-shaped hook are the most satisfactory instruments for its removal in trained hands; Sexton's or some similar forceps may be employed by the somewhat less dextrous. After thorough antiseptic irrigation and cleansing, the fundus should be thoroughly dried and very lightly dusted with dermatol or the calendulated boric acid. The nose, throat and Eustachian tubes should also receive appropriate treatment if at fault; even the cases due to local traumatism are benefited by relieving a coexistant nasal or pharyngeal congestion; the naso-laryngeal tract should therefore always be subjected to close scrutiny. Rest within doors and tonic treatment are often indicated in desquamative myringitis, and if the symptoms do not at once subside the patient should receive local treatment daily. Persistent thickening may subsequently call for massage, Eustachian catheterization or judicious applications of iodin ointments to the drum after all the acute symptoms have subsided.

The hemorrhagic form of myringeal inflammation has been best treated, in my experience, by freely incising the blebs as they appear, gently syringing out the blood clots and insufflating a boric powder containing from 5 to 10 per cent. of alum, a light coating only being applied to the fundus. The nasotubal tract always needs attention, and tonic treatment is generally urgently needed, these cases occurring only in persons of poor vitality with weak vasomotor nerves and vulnerable vascular systems. As the disease has a strong tendency to recur, any existent chronic affection of the ear should be removed as thoroughly as possible and the general system brought up to its highest tone. The writer has seen several cases in which glaucoma occurred in patients who were the subjects of recurrent hemorrhagic myringitis, which may perhaps be regarded as corroborative evidence of the general blood vessel weakness.

Suppurative myringitis is more often a primary disease than is sometimes taught, being not very uncommon from various forms of external injury. If the purulent exudation be only superficial, syringing with carbolized solution, lightly drying the fundus and slightly dusting with powdered acetanilid, is often sufficient to at once arrest the attack. If interstitial suppuration has occurred the minute abscess should be opened, but only when the whole middle ear is known to be involved is it necessary to cut completely through the drum. While probably the mucous membrane of the tympanum is always congested in suppurative myringitis, it is quite common for cases to at once subside without any discharge from the middle ear or perforation of the drum, even though the swelling of the latter may have been extreme and the external purulent exudation considerable. In a few cases the irrigation and acetanilid may have to be continued for several days, or in rare cases the whole middle ear may become involved and perforation occur; the latter is, however, a most unusual accident under modern treatment.

The object of the writer in this brief sketch has been to call attention to an apparent want in modern otologic literature, and to further specialize the somewhat too generally treated subject of acute otitis. The classification suggested is believed to be new, and to be founded upon perfectly definite pathologic facts.

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DISCUSSION.

Dr. Herman Knapp—In some cases I have not been sure whether myringitis or middle-ear disease existed. Such are the cases where after sea-bathing there is earache, and on looking into the ear we find that the drumhead is softened and reddened, as is also the adjacent portion of the canal. For treatment I have advised rest for several days, with the result that the redness has disappeared without any other treatment. I think that parasitic myringitis should come under this head. It occurs almost exclusively in the drumhead and is not very frequent. It is remarkable that these cases of parasitic myringitis occur more often among the wealthy than the poor. I have treated these cases successfully by 4 per cent. of salicylic acid in alcohol. If this is put into the ear three times a day the parasite is very soon destroyed. I have used the same solution also in parasitic troubles of the throat.

Dr. Heffner—Is there any irritation from the instillations of alcohol?

Dr. Knapp—As I have used it, it does not produce any irritation, and cures these cases more quickly than any other remedy.

Dr. J. A. Stucky—I am disappointed in the treatment of these troubles of the membrana tympani with the Politzer bag and syringe. The bag should be used cautiously, if at all. I question the use of large quantities of water in cleaning the canal. It rather increases than diminishes the pain. Patients will endure gentle syringing to the extent of two or three ounces of water very well, but it should not be carried to the point of dizziness or discomfort. I have the best results from keeping the patient in the recumbent position for a day or two. Where this could not be done I have had excellent results by administering salicylate of soda in 0.65 gram doses, every two or three hours, and applying locally 10 per cent. of cocain and resorcin in aqueous solution. The action of the cocain is intensified and prolonged by the resorcin and rendered more readily absorbed.

Dr. Scheppegrell—As to parasitic myringitis being more a disease of the wealthy than of the poor, my experience has been to the contrary. In hospital work I find many cases, but in private practice they are very rare.

Dr. Freeman—Under what head does Dr. Seiss place these cases of myringitis where there is a form of bleb on the membrane?

Dr. Seiss—Hemorrhagic. As to the pain of syringing, I have a large clinic with eight assistants, and when these cases come in two of these assistants attend to them. These two gentlemen can use a syringe with a quart of solution and give relief to the patients; my other six assistants will make the ears of the patients ache. The way the syringe is handled makes the difference. As to the use of cocain, the general surgeon and the ophthalmologist have decided that even moderate solutions in inflammatory conditions are wrong. To use it in active inflammation has made these cases worse.

ACUTE AND CHRONIC CARIES AND NECROSIS OF THE MASTOID; PACHYMENINGITIS EXTERNA; EPIDURAL ABSCESS.

Presented to the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, Pa., June 1-4, 1897.

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Of all the ear diseases, I know none that are, on the one hand, so important and dangerous, and on the other, so gratifying and manageable as the group comprehended in the title of this communication. If left alone they prove fatal in a large percentage of cases; if treated understandingly, they nearly all recover. The grippe has made us familiar with acute mastoid caries. In the first or second week of an attack of acute otitis media there is intense pain in ear and head; tympanic membrane red and bulging; in a few days otorrhea, with or without paracentesis of the drumhead; relief of pain for a few days, then return of it with tenderness and swelling of the mastoid, membrana tympani bulging in upper-posterior part, slight fever, loss of appetite, headache, mental depression; hearing greatly impaired. The further course varies greatly. The discharge may be free for a time, then diminish and disappear together with the other symptoms—natural recovery in the first stage. Or the swelling over the mastoid and the other symptoms become more pronounced, the outer table of the bone is perforated, a post-aural abscess forms, breaks, and the patient gets well—recovery in the second stage.

In the third stage a perforation through the medial table takes place, either outside the skull into the digastric fossa, or into the cranial cavity, more frequently the posterior cranial fossa than the middle. Exceptionally the pus travels through the fenestræ into the inner ear and farther through the internal auditory meatus into the cerebellar cavity. The two varieties are frequently combined and terminate fatally by meningitis and sinus thrombosis, rarely by abscess.

After this brief sketch I will illustrate the chief features of the affection by abstracts of some case histories.

Case 1.—Tympano-mastoiditis from grippe. Acute caries of the mastoid. Extensive operation. Rapid and perfect recovery. End of February, 1896, Mr. G. A. St., a healthy, strong man, was attacked with grippe. In the second week, ear and headache; paracentesis of drumhead; copious otorrhea; relief for a few days. Then symptoms were aggravated; fever; no particular swelling of upper-posterior end of ear canal; drumhead white, moist, perforated. Mastoid slightly swollen and tender, particularly at the tip and posterior border. Gland over the tip swollen. Temperature 100.2 degrees; pulse 64. Two days later symptoms more pronounced; posterior upper part of canal slightly bulging.

Operation under ether. Large incision down to bone from tip to above the auricle; periosteum scraped aside; bone over antrum discolored. Chiseling at the antrum pit soon gave vent to thin pus. The interior of the mastoid was one mass of brittle bone, pus and granulation tissue. The outer table and the whole tip removed, laying bare the digastric fossa. The head of the muscle was not infiltrated. The mastoid cavity was most carefully scraped with sharp spoon, until the wall appeared clean and glistening. The inner table was not corroded, the operation being done as early as seven or eight days after the onset of the ear affection. The patient's neck felt stiff for a few days, after that he made a rapid and complete recovery, with hearing as good as before, and with a surprisingly small indrawn scar.

The most remarkable feature in this case is the rapid destruction of the interior of the mastoid and the caries of the whole tip, tables and interior. The total removal of the tip in such cases is the best guarantee of a quick, undisturbed and permanent recovery. If the tip is left, the improvement after the operation is only temporary; relapses with headache and other ominous cerebral symptoms are apt to follow until the tip is removed. This was exemplified by a case I published several years ago, and, I fear, by a recent case which terminated fatally. Its history is as follows:

Case 2.—Acute tympano-mastoiditis. Extensive caries. Recovery delayed until necrosed tip was removed. Well three months, then died of typhoid fever. Frank Steinbrugger, aged 59, contracted a cold, end of March, 1896; ear and headache; paracentesis; otorrhea. First seen May 4, 1896. Upper-posterior part depressed; mastoid tender and swollen.

Operation. Large opening of mastoid, striking pus in a depth of three millimeters, through ivory-like hard bone over antrum. Extensive cavity filled with brittle bone, pus and granulation tissue, which was cleanly removed. Left hospital in twelve days; treated at office, occasionally. Went to business. At the last visit he paid me, about two months after the operation, the remnant of the tip of the mastoid was necrosed, yet still immovable. His family physician extracted it a few days later. Patient felt well for three months; attended overzealously to his business, and died of what his family physician declared to be a case of typhoid fever. I have no reason to doubt this diagnosis, yet the differential diagnosis between typhoid fever and the intracranial complications of mastoid empyema is not always easy.

Case 3.—Acute tympano-mastoiditis, not operated on. Death from epidural abscess and meningitis. In the *Archives of Otology*, 1895, p. 263, I published a similar case under the title: "A healthy man, of 44 years, had an acute purulent otitis media, after the grippe. Under treatment with paracentesis and topical remedies, rapid improvement, so that he resumed his business (piano-teaching). Relapse of otitis with severe cerebral symptoms; no operation; death. Autopsy: suppuration of mastoid, with perforation into posterior cranial and digastric fossæ; meningitis." Two days before the patient's death, the family physician told me that two weeks previously the patient had had great pain in his left ear and head; was unconscious four days; then dragged his right leg; let fall things held with his right hand, and could not speak. Then there was a complete intermission, during which I saw him. He had had similar attacks, with convulsions, before he contracted his ear trouble, and his father had suffered from the same disease. His younger brother was a drunkard and died a few years previously, and our patient also indulged freely. This family history and the complete intermission might well have clouded the diagnosis, yet I felt so sure of the aural origin of the brain symptoms that I told the physician that I had the greatest misgivings, and that an operation should be done as soon as there was the slightest aggravation of the symptoms. The second night there was a sudden, rapid relapse and the patient died in twenty-four hours. We made an autopsy in the afternoon of the same day. The very instructive, well-preserved specimen of the temporal bone shows a small Bezold perforation and a large perforation of the medial table of the mastoid process, through both of which the pus from the mastoid had made its way into the digastric fossa and the cranial cavity, inducing meningitis, the immediate cause of death.

These cases may suffice to support my statement that acute caries of the mastoid is an important and, if left alone, a dangerous disease. Let me now prove by actual experience that it is a manageable affection. This I shall endeavor to demonstrate by examples in which the onward course of the disease was stopped by the hand of the surgeon.

Case 4.—Acute caries of mastoid, pachymeningitis. Operation. Recovery. Annie Parker, 35 years old, came to me January 6, 1897. Acute purulent otitis media R.; the usual symptoms; temperature 101 to 102 degrees; mastoid tender, especially at tip and posterior border.

Operation. Large opening of the mastoid; outer table removed. The whole cavity, filled with pus, decaying bone and granulations, was cleansed. The medial table, soft, brittle, and granulating, was removed, laying bare the pulsating dura and sigmoid sinus (perisinuitis). Communication with the tympanum was established. Speedy and complete recovery.

Case 5.—Acute mastoid empyema perisinuitis with cerebral symptoms. Operation. Recovery. Louise Lefebre, age 25. Came to clinic March 7, 1897. *Operation:* Incision the whole length of mastoid; large opening down into the tip; pus, brittle bone, and granulation tissue removed. After the scraping-off of the granulations the lateral sinus lay bare one and one fourth inch in length; healthy and pulsating. Rapid and complete recovery.

These observations which I have only sketched, may suffice to show how beneficial thorough operations in these cases may be. Thorough, means the removal of all dead material, pus, carious and necrosed bone, and granulation tissue, the constant accompaniment of dead tissue, especially bone. Care must be taken in doing these operations not to injure the lateral sinus, which accident has happened to me five times. It may happen with the chisel, especially one that has sharp angles, but also with a sharp spoon. The accident is mostly without serious consequences, but there are some fatal cases on record (for instance, Kuhn, by entrance of air, Milligan, after an exploratory operation).

Case 6.—Operated on five years ago for mastoid disease. Pain and tenderness in mastoid. Opening. No pus. Injury of sinus. Recovery. Becky Liebermann, came to me March 26, 1897. Five years ago, was operated on in Vienna. Has of late suffered considerably from pain starting from mastoid. Tenderness on pressure, especially on posterior border. No discharge. No swelling or redness of mastoid. Diagnosis: mastoid neuralgia from ossifying mastoiditis. Opening of mastoid; careful chiseling of the hardened and exceedingly vascular mastoid. Finding no pus, I chiseled backward toward the sinus. In scraping the inner table, suddenly a large stream of dark red blood escaped. The wound was tamponed and dressed. The patient made an undisturbed recovery and has lost her pain.

Case 7.—Acute mastoid caries. Pachymeningitis externa. Operation. Recovery. L. Mandelstein, age 50, came to me May 21, 1897. Earache followed by discharge in a few days, ten days ago; mastoid region gradually swollen; doughy, soft over antrum pit.

Operation: Incision from tip to base; the bone, stripped of periosteum, was blackish in the antrum region, from which place pus escaped. Large opening into outer table and tip; very careful scraping removed all dead tissue; the walls of the cavity were hard and shining everywhere except straight backward, where on palpation soft tissue only could be detected. The soft tissue consisted of rather hardened granulations. With the sharp spoon the latter were removed gradually and a gap exposed in the inner mastoid table, which was bordered with the pinkish-white dura mater. Although the dura filled the gap it was possible with the sharp spoon to remove all granulations from it without injury. The wound was tamponed as usual, and May 21, the patient left the hospital to be treated as an out-patient.

In some cases the cerebral symptoms complicating middle-ear disease are so marked that we have to abide by our diagnosis, although on opening the mastoid we find neither pus nor a fistula to guide us. In such cases we should make an exploratory opening into the cranial cavity. In support of this proposition I will briefly relate a case which I detailed at the meeting of the American Otological Society in 1896.[1]

Case 8.—Mastoiditis, epidural abscess, beginning leptomeningitis. Opening of mastoid and cranium. Recovery. Mrs. J., age 52. Chill May 4, temperature, 103 degrees; pulse 106. May 13, chill; severe pain in left ear; great dizziness; temperature 104 degrees; drumhead red and bulging; serous oozing from ear; relief. May 16, discharge suddenly stopped; pulse 84; temperature 103 degrees; projectile vomiting. May 26, nausea, vomiting, delirium; discharge suddenly stopped again; mastoid tender. May 27, cerebral symptoms more pronounced: 6 P.M. decided delirium; great pain in ear; tenderness of mastoid; vomited several times; irrational; muttering delirium.

Operation at 6:30 P.M., ether. I penetrated into the antrum, then the tip; cells lined with thickened mucous membrane: no pus; bone substance very vascular, soft and brittle. The dura mater of the posterior cranial fossa was laid bare two cm. in diameter. No pus being found, I exposed a small patch (7 mm. in diameter) of healthy looking dura mater at the base of the middle cranial fossa, by chiseling forward and upward, directly behind the attic. Then I chiseled from the antrum straight inward and slightly upward, till the probe penetrated into the attic. No pus anywhere, nor a fistula to guide us. Having in this way opened all the cavities which in suppurative inflammations are most liable to transfer infective material into the cranial cavity, I stopped. The patient rapidly improved. Two days after the operation the family physician who conducted the after treatment, found the dressing soiled with abundant, foul smelling, slightly greenish, purulent secretion which filled the wound completely. This secretion, which in other cases also has been observed to make its appearance one or several days after the operation, must have originated in an epidural abscess, and beginning leptomeningitis.[2] The patient made an uninterrupted and permanent recovery.

What ravages chronic caries and necrosis in the temporal bone may work, can be seen in a specimen which I exhibit. The whole mastoid and the external half of the petrous bone are honey-combed with caries. The disease must have lasted a long time, with free exit of pus outwardly. I have operated on several persons who had this condition and recovered. In the winter of 1896–7 I operated on a scrofulous child whose ear was in the same condition.

Case 9.—Extensive chronic caries and necrosis in the left temporal bone (the petrous portion included) of a scrofulous girl. Pachymeningitis. Perisinuitis. Operation. Recovery. Flossie Heissenbuettel, 3 years old, admitted Nov. 3, 1896. Had measles February 1896; broncho pneumonia; mumps; suppurating glands of neck; empyema; caries and necrosis of mastoid; fistula. Offensive discharge from left ear; mastoid swollen; fistula in which dead bone is visible. Scrofulous glands of neck discharging pus from long fistulæ.

Operation.—Ether; incision from tip up beyond base; periosteum scraped off; dead bone, pus and granulation tissue removed; chiseled the whole osseous wall away, removing all necrosed bone and granulations; at the posterior wall dense, dark granulation tissue, which was carefully removed with a spoon; the dura mater and sinus were extensively laid bare; above and behind the external auditory canal a large mass of carious bone, cheesy pus, and granulation tissue was scooped out; the attic and atrium were gently but carefully scraped till ear-canal, middle-ear, mastoid and adjacent parts of the petrous bone were converted into one large cavity. The child stood the operation well. The ear and glands were dressed with gauze daily for five months, after that more rarely, now every three weeks. There is scarcely any discharge; the cavity is conspicuous, though not half the size as when she was operated upon; it is nicely cuticized; the child has wonderfully improved in general health and can now, seven months after the operation, be considered cured.

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[1] See. Trans. Am. Otol. Soc., Vol. vi., part iii, p. 290.

[2] In June 1897, the patient presented herself again. She was in perfect health, but *completely* deaf in that ear, and complained of a tendency to dizziness which accompanied her ear disease and had never left her. I found the drum membrane totally destroyed, the medial wall of the drum cavity consisting of hard glassy bone, with an irregular surface. All this makes it probable that the inner ear was involved in the suppuration, and the pus which escaped two days after the operation, may have come from the petrous bone.

These nine cases, which I selected from my recent practice, constitute a series of progressive, acute and chronic destruction with extension into the cranial cavity. One case which received no surgical treatment, ended in death by epidural abscess, the other cases, in which timely and sufficient operations were performed, recovered.

THREE CASES OF SUPPURATIVE OTITIS MEDIA; SEVERE SYSTEMIC AND REMOTE DISTURBANCES; RECOVERY AFTER MASTOID OPERATION AND REMOVAL OF POLYPI.

Presented to the Section on Laryngology and Otology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY HIRAM WOODS, Jr., M.D.

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Certain local changes are admitted as indicating need of the mastoid operation. If one or more of the so-called vital indications be present, the demand is emphasized. Apart from these, cases are observed where there is room for legitimate doubt before and after operation; before, because there are no distinctive local signs of pent-up secretion, and yet we see phenomena most easily accounted for by assuming that such a condition exists; after, because no pus is found, and even if the patient recovers, doubt intrudes if operation were really needed to effect cure. The following cases illustrate this fairly well:

Case 1.—John S., age 30, a white laborer, was admitted to the Maryland University Hospital, February 19, 1896. He had been injured the same day by the falling of an embankment. A fractured pelvis was found. He made an uninterrupted recovery for four weeks, when, the evening temperature, normal for three weeks, rose to 102.5 degrees. He had no pain. The next morning, March 11, temperature was 100 degrees. About noon, after a slight chill, there was another rise. Examination did not reveal any cause for the condition observed. During Thursday and Friday the diagnosis of sepsis became clearer, by the occurrence of frequent chilly sensations, fever, increased pulse rate, sweating, loss of appetite, etc. There were no aural symptoms. On Saturday morning the nurse noticed discharge from the right ear. Temperature was 102 degrees; pulse 96. My attention was called to the man about 1 o'clock. There was no history of previous ear disease. I found pus in the canal, large perforation in the lower anterior quadrant of the drum membrane, Eustachian pervious to both the Valsalvan experiment and to Politzerization, and entire absence of pain. The mastoid was neither red, swollen, nor tender. In view of the apparently good drainage from the ear, I decided against operation, believing that it was a case of painless perforation, and the symptoms would now disappear. Treatment consisted in effecting and maintaining cleanliness. For two days, Sunday and Monday, temperature varied from 99 to 101 degrees. Tuesday evening the man had a chill, followed by a temperature of 103.5 degrees, sweat and prostration. Wednesday the same condition persisted, with the addition of a little redness over the tip of the mastoid. The same afternoon, with temperature 102 degrees, pulse 116, I opened the mastoid under chloroform. The cortex was healthy. The cells were deeply injected, but not more than a drop of pus was found though the opening was continued into the tympanic attic, and a stream of water would pass either way from the ear or mastoid to the other. Recovery was immediate and complete. Temperature reached 101 degrees the day following the operation: but this was the only rise, and the man left the hospital well, May 2.

Case 2.—On January 9, 1897, I saw Josephine N., 6 years old, in consultation with Dr. Thomas McCormick of Baltimore. The child had recovered from scarlet fever three weeks previously. There was a history of acute right otorrhea in infancy. Early in the late illness pain had appeared in the right ear, and had been more or less persistent, though not severe. There had been no discharge. Within the past few days, temperature had become high, after several days of freedom from fever. There was some earache; no more than there had been. Temperature was 100 degrees. The appearance of the canal walls and mastoid was normal. In the drumhead there was the scarred perforation of the former attack. There was, however, no evidence of a tympanic inflammation. Heat was applied for two days, and otorrhea, slight in amount, appeared on the morning of January 11. I did not see the child from the 11th to the 14th. The attending physician noted scant discharge; elevation of temperature; unrelieved pain. On the 15th I found the canal walls edematous, so that a view of the drumhead was impossible. A little inoffensive pus was brought out by the cotton pencil. The mastoid was slightly reddened; more, I thought, from heat than any other cause. Temperature was 101 degrees. I thought we had all necessary indications for operation, and so advised. It was declined, and heat, peroxid of hydrogen and syringing continued until the 17th, when, with temperature 101.6 degrees, pulse 130, local conditions unchanged, operation was accepted. After free incision of the edematous canal walls, and the mastoid periosteum, without finding either pus or a carious point in the cortex, the process was opened, and the opening continued into the attic. No pus was found. Pain was relieved at once; temperature fell to normal, and once during convalescence reached 100 degrees. Otorrhea lasted a few days. The ear hears the watch 18/48.

In Case 1 there were septic symptoms for five days, when a painless otorrhea called attention to the ear. In Case 2 there was pain in a formerly diseased ear from the commencement of scarlatina four weeks previous. After some days of normal temperature, fever returned, without increase in the aural symptoms. In both the appearance of otorrhea failed to relieve. Both recovered immediately after the mastoid was opened, and nothing short of this helped. Yet no pus was found, certainly in Case 2, and only a drop, if that, in Case 1. Similar constitutional symptoms occur in the cellulitis of general surgery, and disappear when the infected area is drained, without the presence of pus. The existence of a like primary infection in the mastoids of these patients seems the most plausable explanation of their symptoms.

Case 3.—Prof. Samuel C. Chew of Baltimore, called me in consultation on Nov. 4, 1896, in the case of Mr. P., 27 years of age. For a week Mr. P. had suffered from left frontal headache, with slight elevation of temperature. There was a history of old intermittent otorrhea, and it was to determine a possible connection between the head pain and this, that I was called in. The man was in bed, complaining of agonizing left frontal pain; temperature 100.8; pulse 96. History showed suppurative otitis dating back to infancy. No systematic treatment had ever been employed. Occasionally Mr. P. washed the ear himself. For five years these attacks of headache had occurred. They were described as sudden, severe, prostrating, and lasting from a few hours to several days. The ear was free from pain, and neither tapping nor firm pressure of the mastoid was resented. The canal walls showed nothing abnormal. A little pus, bad smelling, was found in the tympanum. The drumhead was destroyed, the malleus standing out prominently, thickened, while, apparently attached to the posterior tympanic wall, small polypoid masses could be made out. The patient's family would not consent to operation of any kind. From the 4th to the 7th the ear was kept as clean as possible by syringing, and the use of peroxid. There was no increase in the discharge, and little decrease in the pain. Temperature ranged from 99 to 101 degrees. On the afternoon of the 7th the condition grew worse. Pain was agonizing, requiring large doses of morphin to keep the man quiet. I now had doubts concerning the adequacy of any operation about the ear. Pain was absolutely localized in the left frontal region. From the beginning nothing had pointed directly to the ear. True, there was a chronic otorrhea, and inspection showed a state of things commonly observed in old suppurating ears; but this was all. That the ear was the primary cause, I had no doubt. That the disturbing factor, whatever it was, had passed beyond the line separating aural from general surgery, I was beginning to believe. Apart from waiting for localizing brain symptoms, two procedures suggested themselves, removal of the polypoid growths, and mastoid operation. I had little faith in the ability of the first to relieve the symptoms. Not only might the second prove inadequate and leave the patient still in need of cerebral surgery, but such meager indications as there were, pointed to the front, rather than to the rear brain as the seat of disease. I therefere decided to remove the tympanic growths, and if symptoms did not abate, seek a general surgeon's opinion regarding the need of intra cranial exploration. On Sunday morning, 8th, under unsatisfactory cocain anesthesia, I removed the polyps with Buck's curette. Giddiness, profuse sweating, weakness of pulse, and prostration, were the immediate results. Operation was done at 11 A. M., with temperature 99 degrees; pulse 96. At 4 P. M., temperature was 102; highest during illness; pulse 120. During the evening respiration assumed a character strongly suggestive, if not actually, of the "Cheyne Stokes" variety. At first shallow, it became deeper, and passing again in reverse order, ceased altogether for a few seconds, returning and passing through like a cycle. Pulse rate increased to 140. It looked as though the end was not far off. The ear condition, however, underwent a change. There was a freer discharge of pus. Arrangements were made for operation in the morning, and an early consultation secured with Prof. Tiffany. We found the man still in pain, but his general condition was better than the previous night. Fetid pus discharged freely, and he complained of nausea. Pulse was 76, and temperature 97.2.

Prof. Tiffany expressed the opinion that this subnormal temperature threw a new doubt into the case. It might mean cerebral abscess. He advised further delay. It proved to be the beginning of convalescence. Within twenty-four hours pain subsided, and the patient was out in a week. Since, the tympanic condition has been treated. In March the ear was dry, and the man apparently as well as ever. There is not much chance of his staying so. Sooner or later he will have another stormy experience. His history indicates that there is a gradual change of some kind going on in his mastoid, probably an accumulation of pus, until a certain point is reached. when the storm breaks. It seems equally clear that there is no organic brain disease. In his case, another attack would call for the mastoid operation, even if it should not be done before; but so remote, and apparently serious condition as existed here, is not, so far as my knowledge goes, a frequent consequence of mastoid stagnation.

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DISCUSSION ON PAPERS OF DRS. KNAPP AND WOODS.

Dr. Seiss—Out of my last 4300 cases, only 85 were mastoid. Out of these there was only one death, and that was the only case where any more extensive operation was done than removal of the outer table.

Dr. Randall—To know what constitutes disease of the mastoid is essential. Where we have decided swelling, redness and pain over the mastoid region with tenderness to pressure, together with acute inflammation of the middle ear, I call it acute inflammation of the mastoid. I see many cases brought to a successful issue after operation. I have seen quite 100 of these cases every year, and but a small proportion come to operation. I have done as high as thirty mastoid operations in a year, all with pus freely present over the mastoid. In at least one-half of my recent cases the inner table has been broken down, pus was present on the dura, and pachymeningitis more or less present. In the last Stacke operation which I did, I found it impossible to determine where the dura lay. It was covered with flabby granulations, and in removing these with a curette I stopped short because I found I was removing brain tissue. The patient was not hurt by this blunder, so far as I could discover, but it shows that we must be careful. In these cases I can not feel as a general thing that I have done too much. I can not always get complete healing by radical measures, and it is perfectly fitting for those who hold more conservative views to hold them in spite of all that I can say. The majority of mastoid cases can get well without operation and not be in the slightest degree worse for the delay. Last year I had 500 cases; others might say that they were not mastoid cases at all. I can not give only one death in 85 cases, but I have but one death due to operation in 135 cases. One or two died of pneumonia or brain disease, absolutely uninfluenced by the operation.

Dr. Woods—I am aware that the first two cases I reported are open to criticism as to whether they would not have done just as well without operation. The knowledge of that fact led me to report them. There were no local symptoms of mastoid disease, save the slight redness mentioned; and yet, with a history of acute otorrhea in the first, old suppurative otitis in the second, and temperature characteristic of sepsis in both, operation seems to me the safest treatment.

Dr. Laurence Turnbull—I would like to ask Dr. Knapp as to neuralgia of the mastoid. I know of a case where a young girl passed a bead into the mastoid. It gave no uneasiness at first, but later there was discharge and pain. She came to the Jefferson Hospital with this peculiar neuralgic pain gravitating toward the mastoid, and after cleansing the ear we opened the mastoid and left the bone clean and white. She seemed to be improving for a time, but later returned several times with the intense pain. The mastoid was finally opened a second time; but she still has the pain.

Dr. Knapp—I have found mastoid neuralgia in cases where a chronically inflamed mastoid is undergoing conversion from the pneumatic and diploic varieties into the sclerosed. When we operate for this condition we mostly find the mastoid compact and, in some layers at least, usually the medial ones, congested. These cases get well by operation, and in time, also spontaneously, I think by destruction of the nerve either by the operation or by compression during the sclerosing process.

WHAT CAN BE ACCOMPLISHED BY TREATMENT OF EUSTACHIAN TUBE,

WITH SPECIAL CONSIDERATION OF THE TREATMENT OF CHRONIC STENOSIS.

Presented to the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1–4, 1897.

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Let us briefly recall the anatomy and function of the Eustachian tube, in so far as it concerns the measures advocated in this paper. The Eustachian tube is the passage between the naso-pharynx and tympanic cavity—in length thirty-three to forty millimeters. From its relatively large pharyngeal mouth it extends twenty-five millimeters with walls formed by an incomplete furrow of fibro-cartilage, consisting of a posterior and anterior plate, the anterior being movable. This portion of the tube where not cartilaginous is membranous, which with its lining mucous membrane has considerable thickness. This cartilaginous portion of the tube unites with the remaining ten to fifteen millimeters of the osseous portion of the tube, forming with it an obtuse somewhat circular angle of 135 degrees. At this angle the lumen of the tube is smallest; that is two to three millimeters.

The walls of the Eustachian tube are lined by glandular mucous membrane, with ciliated cylindric epithelia, whose ciliary movement is directed toward the pharyngeal opening which has a lower level than the tympanic opening. The lining of the osseous portion is smooth and closely incorporated with the periosteum. With surrounding conditions normal, the normal Eustachian tube allows the passage of air not with absolute freedom, for the tube at rest has its sides in contact, but yet with sufficient freedom to establish an approximate equality of atmospheric equilibrium, allowing the secretions of lining membrane of the tube and tympanum to escape or evaporate. But if atmospheric pressure is not approximately equal the air in the tympanum is absorbed by surrounding liquids through the walls of blood and lymph vessels, obeying the law that liquids absorb their own volumn of associated gas, and thus the air not being renewed in the tympanum, there follow the well-known symptoms—deafness, feeling of fullness, a probable tinnitus, autophonia, but especially that decisive sign, the appearance of the retracted tympanic membrane itself.

But with retracted membrane the alert aurist would not, necessarily, diagnose at once an obstructive Eustachian tube, as turgescence or hypertrophy of the turbinated bodies alone might account for the rarefied air to a considerable degree. Still more will the pressure be out of equilibrium if the opening between pharynx and naso-pharynx be occluded.

Two cases presented themselves to me which will illustrate this condition to an extreme degree.

M. S., age 40, had periods of great deafness, and in one such period came to me for relief. The tympanic membranes were strongly retracted, the turbinated bodies were very turgescent, the patient being evidently in the midst of an attack of acute coryza. The communication, in this case between the pharynx and naso-pharynx, was totally shut off by a smooth impervious membrane. The history of this condition was as follows: When a schoolgirl at Heidelberg she was bending over her desk with a long sharpened slate pencil in her mouth, the teacher coming behind to rebuke her for idleness, gave the child a blow upon the head with a book. The head was driven down upon the unyielding pencil. whose other end was supported by the desk. Its point was thus driven into the pharyngeal wall. Although attended by one of the able professors of the university, extensive ulceration occurred and doubtless the final condition failed to be presented to him. At least, her condition had remained from childhood as she presented herself to me. At once, on opening this tough membrane with an instrument I had devised for somewhat similar cases her hearing was restored and she was enabled to blow her nose for the first time in thirty years.

Another case, B. S., 4 years old, had scarlet fever a year previous, resulting in great deafness, which was worse at times of coryza. Adhesion had resulted between the pharyngeal wall and the soft palate, producing complete occlusion of the passage. The child was operated on with the above-mentioned instrument, which aided much in the facility of the operation, as it is extremely difficult to manipulate a cutting instrument back of the palate without danger to the carotid arteries. The hearing at once improved and although the sclerosed tissues at the seat of the old ulceration again closed, the operation was repeated a third time after intervening periods of considerable length, when the opening became permanent.

Many cases of lesser degree of obstruction at this point (the naso-pharyngeal opening), would still have the effect of disturbing the equilibrium of atmospheric pressure in the tympanum, and the above cases are only cited because of the absolute demonstration of the effects of rarefied air in the naso-pharynx. Other lesser impediments, as adenoid growths, which I believe directly arise from a previous nasal obstruction, although possibly a temporary one, and which producing this rarefied condition of atmospheric pressure will, with its continuous, yet slight suction power, so affect the yielding tissues of the infant as to cause venous congestion favorable to the growth of adenoid tissue. Retained secretions, bacterial growth therein and consequent irritation likewise favor the growth of lymphoid tissue, conditions that must also be attributed to nasal and naso-pharyngeal obstruction. Thus I believe this tissue instead of being responsible for venous congestion, as is maintained by prominent authorities, is one of the sequelæ of the congestion. The continued pressure of lymphoid growths also favors the continued congestion and obstruction, and likewise hypertrophies of the turbinated bodies, deflected septi, nasal polypi, and nasal spurs, may interfere with the ingress and egress of air and the resulting equilibrium of atmospheric pressure, and they must therefore be removed by appropriate operation or treatment before attention is directed exclusively to the Eustachian tube.

Now, if obstruction of nasal passages or naso-pharynx produces this want of equilibrium in the tympanum, so much more will stenosis or occlusion of the tube itself, and will lead to that venous congestion of the tympanum which I believe is responsible for a very large majority of cases of chronic tinnitus aurium, as well as chronic deafness resulting from sclerosis of tympanic membrane and associated structures, for not only is the circulation of the blood abnormal, but the reverberating sound waves of the blood currents have no longer their normal exit, but are as in the closed seashell, which confines the sound in unbroken walls. I have noticed this tinnitus to be removed for several days after the relief of the venous congestion following the removal of a nasal spur, with free hemorrhage, and so I could explain the relief after depletive measures, as by catharsis and pilocarpin, which give temporary relief. But the belief that free ingress of air into the tympanum will at least relieve the congestion, and therefore the tinnitus, has been borne upon me, especially during the last two years, by the results of a more systematic use of bougies in the Eustachian tube where stenosis of the tube or retraction of the tympanic membrane existed. I have tabulated a series of thirty cases which had long become chronic and which will therefore be of more interest because of their usually intractable nature. Seventeen were chronic cases of tinnitus and all chronically deaf, with one exception which although marked chronic tinnitus, exhibited no degree of diminished hearing, yet was (I think) in the first stage of venous congestion. After systematic use of bougies the results in these seventeen cases was, seven were made entirely free, five improved to such a degree that it became no longer troublesome, while in five there was no reported change. But, with one exception, those not improved had but few treatments. In two of the favorable cases, although the tinnitus had been constant for six or more years, it was removed only after six months of treatment. In the twenty-nine cases of chronically deaf, one only was restored to normal hearing; seven were very much improved; five slightly improved; one heard better in one ear, but worse in the other, while in nine there was no change. One of these cases was of deafness without tinnitus, which was decidedly improved by the bougie, although the air douche had previously failed to relieve to the same extent; yet in this case there was relapse to nearly the first condition, although bougies were used for quite a year. In no case was there any unfavorable result, unless it were in one case, who six weeks after her last treatment was taken with an acute middle-ear trouble, which soon subsided. but the patient had been perfectly free from pain in the interval, in fact relieved in a degree from deafness, and she attributed the inflammation to a severe cold. I speak of this as a possible sequel, as I have been particularly watchful for any possible bad effects from the use of the bougies. Thirty may seem too small a number of cases from which to draw any sweeping conclusions, yet the good results in these few may have been due to the method used in its performance. Appropriate cases, viz., those with retracted membrane and which are given temporary relief by air douche or massage, should be selected.

My rules are as follows:

1. Never delegate the work to another.

2. Never do it hurriedly (several times I have broken this rule and failure resulted), but always

count upon having, if necessary, one-half hour for the operation. Usually it may be done in a minute or less, but difficult cases arise, but if done leisurely an apparently difficult case becomes easy.

3. Have proper fitting, well-shaped Eustachian catheters. Those from Reiner in Vienna have given me perfect satisfaction.
4. Have antiseptically clean catheters and bougies.
5. Prepare the mucous membrane of the nasal passages, especially the pharyngeal mouth of the Eustachian tube, with an application of a 10 per cent. solution of cocain.
6. Smear the bougie with a 3 per cent. ointment made of lanolin and nitrate of silver. This measure is, as far as I know, original, and to it I attribute largely the good results. Unlike other fats lanolin clings tenaciously to the bougie, shields it and makes its passage more easy; and with the argentum nitrate is antiseptic and alterative in effect locally. I have it prepared from the aqueous solution of silver nitrate so that it becomes a stiff emulsion. It is only after long exposure that the ointment undergoes a chemic change, becoming black on the surface but apparently unchanged beneath.
7. Observe that the bougies are in perfect condition. Celluloid may become brittle and therefore highly dangerous, and whalebone may become rough or thready and therefore irritating.
8. Let the bougie rest in place twenty minutes to half an hour in the Eustachian tube.
9. Use the bougie not oftener than twice per week.
10. Measure the bougie and see that it does not advance more than thirty-three millimeters.

After making sure of nasal and naso-pharyngeal freedom, the above treatment seems a rational one, and directed to the securing of equilibrium of atmospheric pressure in the tympanum. To secure this condition I believe should be the foundation effort. Where equilibrium is wanting, air douching, either by catheter, Politzer's method or otherwise, and massage of the ossicles and membranes, can be but of temporary effect.

The analogy of chronic stenosis of the tear duct and of the male urethra is sufficiently suggestive. It would be a timid surgeon that in stenosis of either of those passages would rely upon applications of a vapor or a liquid. If gradual dilatation in those passages is indicated and an accepted measure, I believe it to be in the Eustachian tube. That stenosis may at some time return is no argument that the treatment should not be adopted, but because of the delicate nature of the Eustachian tube it should never be treated by careless or unskilled hands.

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NATURAL GAS AND EUSTACHIAN INFLAMMATION.

Presented to the Section on Laryngology and Otology at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, June 1-4, 1897.

BY JOHN JOHNSON KYLE, M.D.
MARION, IND.

Some few weeks ago it was my pleasure to read a paper before the Western Ophthalmological, Otological, Laryngological and Rhinological Association, calling attention to the effect of natural gas upon the conjunctiva. I now desire, in a general way, to show wherein the natural gas from the Indiana field is a potent factor in causing catarrhal inflammation of the whole pneumatic system, with special reference to the Eustachian tube.

The gas from Indiana differs from that of the New York or Pennsylvania field, in that it contains sulphuretted hydrogen, and in burning the process of combustion is not so complete. Eighty-five per cent. of the natural gas is marsh gas, which is composed of 75 per cent. by weight of carbon and 25 per cent. of hydrogen. The products of combustion, which differ in every case, are carbon dioxid, water vapor, sulphur dioxid, trioxid, nitrogen oxids and ammonia sulphate. The sulphur oxids soon became sulphuric acid, collecting as such upon chandeliers and smoke shades. As a result of the combustion, the greatest irritant to the mucous membrane is produced. This is more noticeable in winter than in summer, and results from imperfect ventilation, thus allowing excessive accumulation of burnt gas, which is constantly thrown off from jets, open fires and stoves. In consequence we have a marked increase of nose, throat and bronchial affections.

The Indiana gas belt covers a territory of 2500 square miles, with a very large population made up of immigrants and foreigners. Where jets are used for illuminating, patients suffering from phthisis, hay fever, asthma, catarrhal pneumonia, diphtheria and scarlet fever, especially suffer from this irritation. Where every effort is made to subdue abnormal cough or throat irritation the substitution of lamps brings relief. The gas is very destructive to carpets, draperies, gold and silverware and surgical instruments. Public speakers, actors, singers, and especially those who are accustomed to moist sea air suffer from this poison.

We consider systemic diseases, climatic conditions, unhygienic surroundings, malarial poisoning, sewer gas and etc., causes of middle ear diseases, and that inflammation of the Eustachian tube is an extension of a diseased condition of the nose and throat. The tissues of the tube are virtually the same as those of the throat, containing lymphatics, a plexus of nerve fibers and nerve cells; within the stroma of the cartilage are numerous mucous glands lessening as we reach the osseous portion. The tube is covered with ciliated epithelium, which are in constant motion, moving like fields of grain. The glandular system of the tube plays the important part in acute inflammation due to natural gas, coincident with similar change in nose and throat. In the prodromal stage all victims suffer more or less alike, complaining of dryness and fulness of nose and throat. The sensation of dryness is not unlike that from cocain anesthesia. If exposed to burnt gas with this we have huskiness of voice and an exceedingly annoying cough. Within twenty-four to thirty-six hours the inflammatory stage, differing in every case, is ushered in by slight elevation of temperature, general malaise, tinnitus aurium and headache. If apartments are illuminated with jets we will have constant cough from the sulphur oxids, and an abnormal desire for sleep, which results from excessive inhalation of carbonic acid gas. On examination in acute cases, we find the mucous membrane of the nose and throat swollen and of a dry glistening appearance. The dryness is so excessive as to cause the mucous membrane of the cartilaginous septum, throat and gums to crack open, which allows exudation of the fluid elements of the blood. This dries in the form of bloody crusts along the septum and is with difficulty removed, reforming, however, very rapidly. The accumulation of thick mucus tinged with blood is excessive in the vault of the pharynx.

With the exception of the vestibule, it is asserted that the nose and throat is an aseptic cavity! Hugenschmidt (*Annales de l'Institut Pasteur*) asserts that "in the pharynx there are true lymphatic sacs containing various kinds of phagocytes under the epithelial layer, which are constantly being passed on to the mucous surface between the epithelial layer." The gas destructive to the epithelial covering of the pharynx and to that of the anterior septum, most naturally perverts the function of the leucocytes; thus readjustment of the tissues may be slow on account of the constant reinfection.

The tendency of patients in acute cases, due to the swollen and inflamed condition of the nose, is to breathe through the mouth during sleep. As a result of the lessened chemostatic power of the saliva during sleep, we have with the marked local effect in the oral cavity and especially in the throat, elevation of temperature and general malaise, following the invasion of bacteria. The tube when affected, on account of the venous congestion, is swollen and filled with viscid secretion, which is demonstrated by the peculiar sound caused by the current of air being forced into the ear, as in acute cases from colds, etc. Dilatation is not easily accomplished, since on account of the venous congestion, we are compelled to rely solely upon the Politzer method. In cases involving the middle ear, patient complains of fulness, slight diminution of hearing and pain extending to middle ear. We find this especially conspicuous in glass blowers suffering from the disease. On examination we find the drum hyperemic along the short process and handle and always retracted, due evidently to the swollen condition of the cartilaginous portion of the tube. The ear symptoms are not those typically of acute catarrhal inflammation, rather those of the sub-acute form. In from five to six weeks the acute inflammatory symptoms gradually disappear and tissues become readjusted, further proof of the singular function of the adaptation of the mucous membrane to irritating cases. The disease is, however, passive in character and may develop rapidly into chronic inflammation. Chronic catarrhal deafness is such a prevalent disease that it is purely hypothetical to say that natural gas, or any other gas to which the patient is exposed, may alone cause the disease, though we are safe in concluding that in a patient susceptible to such a disease, all the symptoms will be aggravated. In the cases attributed to natural gas the disease was in no wise dependent upon the hypertrophic change in the nose, but upon the diseased condition of the pharynx. The ease with which patency of the tube and mobility of the drum are restored differentiates it, I believe, from so-called catarrhal deafness. The mucous membrane of the anterior septum will in chronic cases be found covered with superficial blood vessels and crusts, which cause frequent septal hemorrhages, a condition closely allied to rhinitis sicca anterior, a disease first described by Siebemann in 1889. The throat symptoms now resemble chronic pharyngitis or clergyman's sore throat, membranes more or less covered with follicles varying in shape and color; superficial veins always in great numbers; the secretion from posterior nares thick and tenacious. In the acute stage the treatment is necessarily palliative and sedative. Unless in the treatment all lights from jets are condemned and oil and electric lights substituted, little result is secured. The mucous membrane of the nose and throat is cleansed with Seiler's or Dobell's solution, followed by a spray of albolin, menthol and camphor solution. In the treatment of tubal and middle ear affections we rely upon the inflation with the Politzer method, condemning the canula and relying upon hot applications and massage, which relieves the congestion and promotes the absorption of any serous exudation within the middle ear. Frequently a change of surroundings is absolutely necessary, as no other form of treatment brings relief. The acute stage usually passes off quickly, and prophylactic and palliative treatment is all that is necessary.

In the chronic stage the treatment of the pharynx with its enlarged follicles and superficial veins, our absolute reliance is upon the galvano-cautery. The stenosis of the Eustachian tube is treated by inflation through a No. 2 or 3 German silver canula with injections of, preferably, menthol camphor in albolin, and massage the drum. The septal hemorrhage from the crust formation and habit of picking the nose, is relieved by the destruction of the superficial blood vessels with the actual cautery or strong solution of nitrate of silver. The crusts are softened, and healing stimulated by yellow oxid of mercury ointment or ichthyol, 3 per cent. in lanolin.

The normal ciliated epithelium is now replaced by cicatricial tissue. In conclusion we assert:

1. Natural gas is an important factor in relation to public health.
2. The elements of combustion are active irritants to the exposed mucous membrane.
3. It is an exciting cause of catarrhal inflammation of the nose, throat and middle ear.

TINNITUS IN ITS RELATION TO NASAL AND AURAL AFFECTIONS.

Discussion in the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

OPENED BY B. ALEXANDER RANDALL, M.D.
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This is a topic which appeals to all of us and it is important that clear views should be obtained of it so far as possible. The division into the objective and subjective forms is hardly worth mentioning, and yet we should remember that there is a large amount of objective tinnitus present in aneurysm, etc. Several cases bring clearly to my mind how easy it is to ignore this matter. It is inevitable that we should have a large bruit ever present, and if an anemic condition gives rise to anemic heart-sounds it may result in similar murmurs in the ear.

It is important in turning to the subjective symptoms, to remember that there are at least five points where this condition may arise, marking the cerebral, the labyrinthine, the tympanic, the tubal and the purely nasal forms. With this distinction it is clear that we are all interested in the question of what we generally call aural tinnitus. The conditions are largely vascular and there may be a local lesion which determines the exact exciting cause. It is of wide spread character, and I suppose there are few who are more prone to tinnitus than the overworked physician. We will find that the proper use of rest, or some of those substitutes that we employ, such as strychnia, will be of distinct value. This will do more for the relief of these conditions, where there is vasomotor trouble, than the bromids and sedatives. As to the labyrinthine cases we must guess rather than speak with certainty. The tympanic cases are many, and the effect of pneumatic massage will promptly demonstrate that the trouble is located in the tympanic cavity. A little mobilization will account for much of the trouble and give great relief. In all cases I use the pneumatic massage to a great extent. I employ finger-tip massage in this way: Instead of using the mere pressure, I insert the finger into the auditory canal as deeply as possible, and then with a piston movement I can secure a decided amount of suction as well as pressure. This measure I have found harmless as far as tested, and it is always within the power of the patient. I have often found it very effective. In these cases, tubal or otherwise, where we have to resort to other measures, it is often possible that with the best employment of those measures we get only moderate relief, which is for a time trebled or quadrupled by the pneumatic massage.

The manner of tubal relief has been discussed by Dr. Marshall, and I cordially accord with what he has said. Great relief can be had with the use of the bougie, but it is so delicate a procedure that I employ it very little, especially in the dispensary. The employment of silver followed by the vapor of iodin in the tube, is also valuable. It is certainly a potent method, potent for evil as well as good, and should be used with the greatest caution. The element of pressure is an essential and valuable factor in many cases.

The nasal causation of tinnitus is well known. It is well to remember that these are complex matters, and that in some cases the incautious cauterization of the turbinal has been followed by intracranial thrombosis.

Dr. **Martindale**—In a large number of cases you will find that you are dealing with objective instead of subjective tinnitus. We have tinnitus because there is a slight and often unrecognized lesion in the middle ear or the Eustachian tube, which is sufficient to determine the symptoms to that point rather than to the eye or some other organ. As to the value of the otoscope, I have given up its use almost altogether. It does relieve tinnitus for a short time, but it comes back. I am glad to learn that the results are sometimes permanent. I do think that harm can be done to the canal by the inflammation. Passive motion of the ossicular chain will cause the condition to increase. If the patient is suffering from progressive inflammation, this treatment is like trying to walk with a sprained ankle. If you increase the blood supply by inserting the finger into the canal and manipulating the parts, it may cause an increase of the trouble.

I use the Eustachian bougie a great deal and do not think it is dangerous. I employ a very simple form of instrument made by taking a No. 5 piano wire and bending a hook in one end. This is passed through a Eustachian catheter, and will protrude from the mouth of the catheter about an inch and a half. Wrap the hook with sterilized cotton, to any size you please, according to the amount of stenosis. The advantage is that the cotton can not slip off, and that carried rapidly through the tube into the stricture and allowed to remain a few moments, the cotton increases in size, and you have increased dilatation. You avoid the friction of celluloid, whalebone or other bougies in passing through the cavity. When insertion is made an inch and a half you must continue with great caution. I have used silver, but not for a long time. Nasal tinnitus is often due to labyrinthine conditions.

Dr. **Max Thorner**—Often cases of tinnitus aurium have suddenly disappeared after the removal of obstructions in the nasal passages, but we can not promise relief in all cases. I have seen cases where the nose was perfectly normal, with very little trouble in the naso-pharynx or the Eustachian tube. In such cases the result of any treatment depends entirely upon the intra-aural condition. The worst cases are those where we have sclerosis in the middle ear and a patulous tube.

I have removed the ossicles and made multiple incision through the drumhead as recommended a number of years ago, and have seen occasionally some improvement, but this did not last more than two, three or four months. I have used the pressure probe of Lucae, and have given treatment by the exhaustion of air, but no more than temporary improvement has followed in the majority of cases. I have found inflation of temporary benefit. If we would examine in every case, we might find adenoids, or nests of adenoids in a large number, although their removal does not always cure the tinnitus. I have used iodid of ethyl in acute and chronic cases; and frequently have found it give relief, where nothing else would benefit the patient even temporarily.

Dr. **Martindale**—One objection to the cotton plug is that it only touches one point of stenosis. If an attempt is made to make pressure to a considerable extent, it is hard to get an equal caliber. I also believe that cotton is more irritating than the smooth surfaces of celluloid or whalebone. We need only compare it to the use of the steel sound in the urethra; no matter how small the sound, we find that cotton is more irritating.

THE SURGICAL TREATMENT OF ACUTE INFLAMMATIONS OF THE MIDDLE EAR.

Presented to the Section on Laryngology and Otology at the Forty-eighth Annual Meeting of the American Medical Association held at Philadelphia, Pa., June 1-4, 1897.

BY EDWARD B. DENCH, M.D.

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NEW YORK, N. Y.

Up to a comparatively recent date an acute inflammatory process within the tympanum was scarcely considered worthy of consideration, from a surgical point of view, unless it was of so severe a type as to involve the osseous structures in immediate relation with the tympanum. The general practitioner, and quite frequently the otologist, advised what was then the "conservative treatment" of these cases. The patient was allowed to suffer pain until spontaneous evacuation of the inflammatory products occurred.

It is hardly necessary for me to point out that this plan was erroneous. It was, perhaps, excusable for the reason that only within the last few years has much been written upon the special anatomy of the middle ear. Thanks to the investigations of Blake and Bryant of Boston we no longer consider the middle ear as a single cavity, but divide it into two portions, the atrium and the vault, by a horizontal line drawn through the short process of the malleus, the former portion lying below this line, the latter above it. On account of this division, we recognize two forms of inflammation of the middle ear, one affecting primarily the atrium, and the other the vault of the tympanum. An inflammation of the atrium is characterized by symptoms common to a catarrhal inflammation in any other portion of the body, that is by an effusion of a fluid. This is due both to an increased quantity of normal secretion from the glandular structures and also to a serous transudation from the blood vessels. Owing to the small amount of connective tissue within this space, suppurative inflammation is practically impossible. On the other hand, an inflammation in the tympanic vault invariably leads to connective tissue necrosis and the formation of pus. The process follows exactly the same course as an inflammation involving connective tissue in any other portion of the body; that is, it constitutes a true cellulitis. The proximity of the tympanic vault to the mastoid antrum, of which it really forms a continuation, and to the middle cranial fossa, from which it is separated by a thin lamella of bone, renders it evident that a purulent inflammation within this space is always a condition of considerable gravity.

I would not have it understood that a purulent discharge from the middle ear can only result from infection of the tympanic vault. In an acute catarrhal otitis, with rupture of the membrana tympani, the discharge which at first is muco-serous in character, is easily infected if allowed to remain in the external auditory canal, and in this way may become purulent. In this event subsequent infection of the vault of the tympanum is common, but is not the invariable rule. The parts within the upper portion of the middle ear may also suffer from an acute congestion. If the inflammatory process extends no further a certain amount of serous transudation will drain along the long process of the incus into the atrium. In this way the engorged vessels are relieved and suppuration and tissue necrosis is avoided.

An acute catarrhal otitis is characterized by a uniform injection of the entire drum membrane. While the membrana flaccida is red and turgid, the entire membrana tensa is also reddened. If the process has continued for a few hours the posterior portion of the membrana tensa will bulge into the canal, particularly in the posterior segment. In direct contrast with this is the otoscopic appearance presented by an inflammation of the tympanic vault. In the very early stages the membrana flaccida appears greatly reddened and swollen, while the membrana tensa remains perfectly normal in color. Only rarely do we find the vessels of the manubrial plexus slightly engorged. After a few hours the upper and posterior portion of the drum membrane appears to sink downward into the canal, so as to narrow the fundus and partially obscure and hide the upper part of the membrana tensa, the portion of this structure visible still preserving its normal color. In the severe cases the displacement of the upper portion of the drum membrane, that is, of the membrana flaccida, may be so extensive as to allow a view of the lower and anterior segment of the membrana tensa only, this appearing bright and glistening and showing no evidence of inflammation.

The treatment of these conditions differs in that, while an acute catarrhal inflammation may be frequently aborted by local blood-letting in the early stages or relieved by surgical measures, if seen later, operative treatment is imperative, even in the incipiency of an inflammation of the tympanic vault. For a number of years I made an attempt to abort both forms of the disease by local blood-letting, either by means of the natural or artificial leech. At the present time I seldom resort to either of these methods, and am more and more convinced that the only safety lies in making a free incision into the inflamed tissues. If the case is one of acute catarrhal otitis where the membrana tensa is involved, except in the very earliest stage, I incise not only the membrana tympani but the tissue covering the internal tympanic wall in order to secure a complete depletion of the engorged vessels. I am not speaking of cases in which there has been an effusion of fluid into the tympanum. Here, there is no doubt as to the advisability of incision. But even before this has occurred better results will be obtained by the free use of the knife than by any milder measure. In the catarrhal form of the disease this incision should lie in the posterior segment of the drum membrane, close to its periphery, and should extend from just above the inferior pole upward to the posterior fold. As the puncture is made the knife should be carried inward until its point impinges upon the bony wall of the middle ear. It should then be carried rapidly upward to just below the posterior fold. In this way the drum membrane is freely incised for about one-fourth of its circumference. As the upward cut is made care should be taken to keep the point of the knife against the internal tympanic wall, so as to incise the overlying mucous membrane.

In the severe form of the middle ear inflammation the knife should be directed upward, backward and inward, the puncture being made just behind the short process of the malleus. The incision is then carried backward to the periphery of the bony ring, care being taken to divide the reduplications of the mucous membrane filling the tympanic vault. As the edge of the knife touches the bony ring it should be turned upward and the instrument withdrawn, the knife being kept in contact with the bone so as to incise the periosteum of the upper wall of the canal for a considerable distance. By making first a horizontal and then a vertical incision, a triangular flap is formed, allowing free drainage from the tympanic vault. Copious hemorrhage immediately follows the incision and may continue for several minutes. Frequently, after the hemorrhage has ceased, there will be a sero-sanguinolent discharge for one or two days, until the engorged vessels have unloaded themselves and resumed their normal tone. Suppuration is thus prevented, and extension to the mastoid process seldom occurs.

While the incision of the drum membrane is an operation of no great importance, a certain amount of care must be taken in performing this simple procedure. In the first place, it is absolutly necessary that the canal and membrana tympani should be thoroughly sterilized before operation. The field of operation can be rendered almost absolutely aseptic if the canal is first syringed with a warm solution of bichlorid of mercury, 1–5000. The parts are then dried with a pledget of sterilized cotton, and the walls of the meatus and the drum membrane are mopped thoroughly and as vigorously as possible by means of the cotton pledget, with an alcoholic solution of the same drug, 1–3000. As the strong alcohol of the pharmacopeia causes considerable pain when applied to the inflamed drum membrane, I usually make this solution as follows: one part of an aqueous solution of bichlorid of mercury (1-1000) is diluted with twice its volume of alcohol. I have found that the desired asepsis can be secured by the use of this mixture, and that the pain consequent upon its application is slight.

No instrument should be introduced into the canal before it has been perfectly sterilized. This is best effected by boiling the specula, cotton holders, forceps, etc., in a 2 per cent. solution of sodium carbonate. As prolonged boiling takes the "temper" out of the delicate knives used in the operation, these should be immersed in the fluid only a short time, one minute being usually sufficient, if they have been thoroughly cleansed mechanically, before being subjected to boiling. The cotton used should also be surgically clean. Of late, I have adopted the following plan for the sterilization of the cotton mops. An ordinary wooden toothpick is dipped in liquid glue, and is then wound with surgical cotton in the ordinary manner. A large number of these cotton-tipped probes are prepared, and sterilized in the Arnold sterilizer for half an hour. After this they are wrapped up in a piece of sterilized gauze until they are required for use.

As to the knife best adapted to this operation. The old form of myringotome is practically worthless. The name myringotome is well chosen to designate the instrument. It simply makes a puncture in the membrane instead of a free incision. It is utterly impossible to secure a sharp cutting edge in a small instrument of this shape, and in many cases the point of the knife is so dull that it can only be forced through the drum membrane with difficulty. This not only increases the pain of the procedure, but renders it imperfect. I invariably use a small knife resembling, in shape, a sharp tenotome, the blade being about three-quarters of an inch in length. I always insist that these instruments shall be brought to so keen an edge that they will pass through a test drum merely by their own weight. Where the incision is to be carried outward along the superior wall of the canal, as in cases of suppuration in the tympanic vault, a rather stronger knife should be used. Here it is also more convenient to have the blade curved like the ordinary curved sharp bistoury, the length of the blade being about the same as in the instrument already described. Proper attention to the instruments renders incision of the drum membrane much less painful than it has usually been considered. In the majority of patients, general anesthesia is unnecessary.

Regarding the after-treatment of these cases, I still favor the old plan of frequent syringing. Drainage by a strip of aseptic gauze, is the ideal procedure. When the discharge is very profuse, the dressing needs to be renewed every few hours, and this is naturally, impracticable, both in hospital and private practice. I have used both methods, and find that better results are obtained if the canal is kept free from secretion by a frequent use of the syringe. The fluid employed should be either sterilized water or a weak antiseptic solution; such as a solution of bichlorid of mercury (1-5000). The medical attendant should give special instructions as to the manner of using the syringe, and see that these instructions are followed to the letter. The column of fluid introduced into the canal cleanses it from the discharge which has accumulated there, and, on account of its antiseptic properties, keeps the parts thoroughly aseptic until the ear is again cleansed. The frequency with which the syringe is to be used depends upon the amount of discharge. In infants, it is often necessary to repeat the procedure every two hours. In adults, once in three or four hours is usually sufficient. As the discharge diminishes, this interval is prolonged, and the irrigation is discontinued altogether when the discharge has ceased. It is stated by some that this plan of treatment is absolutely dangerous, and has occasionally been responsible for the unfavorable course pursued by the disease. The absurdity of such a statement is at once evident. If a patient is so ignorant that he can not carry out the syringing of the ear in the proper manner, much more mischief will follow the use of the gauze drain in the canal. I speak advisedly on this point, as my experience has been by no means small.

Very little need be said regarding the further treatment of these cases. An acute catarrhal otitis yields to treatment readily, unless the discharge is infected in the canal. In rare instances, it may be necessary to apply a solution of nitrate of silver, either to the external surface of the drum membrane, or even to the middle ear, before the vessels will regain their proper tone and allow the membrane to resume its normal condition. These cases are, however, exceptional. In acute suppurative cases, granulation tissue occasionally develops. Cauterization, either with a chromic acid bead or with a strong solution of silver nitrate, destroys this tissue completely, and restores the parts to their normal condition. When seen early, mastoid involvement seldom occurs.

17 W. 46th Street.

DISCUSSION.

Dr. RANDALL—It is but just that I should say a word as to the anatomy of the ear according to Leidy. Blake and others followed him by many years in adopting these divisions. Otologists do not realize as they should and must in surgical treatment, that the antrum is the posterior part of the tympanic cavity. The surgical treatment of the middle ear will have its proper basis only when these divisions are rightly realized.

Dr. Smith—Dr. Dench makes a distinction between catarrhal and other conditions. There may be a higher elevation of temperature and worse symptoms, but before we know what part of the tympanic cavity is inflamed, the point of incision seems to me not found.

INTRATYMPANIC SURGERY; ESPECIALLY IN CHRONIC PURULENT OTITIS MEDIA.

Presented in the Section on Laryngology and Otology at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

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My experience in intratympanic surgery has been gained in 109 operations within the drum cavity, viz.: 43 operations for the relief of chonic catarrhal deafness and tinnitus, 26 for the relief of chronic tinnitus and tympanic vertigo (Ménière's symptoms) of catarrhal origin, and 30 for the relief of chronic purulency of the middle ear. In this article, however, I shall ask your attention to brief notes of the thirty purulent cases and the operations performed for the relief of this diseased condition of the ear. In all these cases various rational routine means had been employed for their amelioration before resorting to intratympanic operations. These operations have been performed upon the etherized patient, with one exception, Case 8, in which the dangling malleus was removed like a polypus with the polypus snare. The ear has been illuminated by means of a three-candle-power electric head lamp, held on the forehead, like the ordinary forehead mirror, and supplied by a portable storage battery of six volts.

Case 1.—Miss M. of Philadelphia, age 23, a private patient. Attic suppuration and deafness in the right ear for six years. Sole perforation in the membrana flaccida. July, 1889, excision of membrana and malleus; malleus head necrosed; no trace of incus. Cessation of discharge, regeneration of membrana and great improvement in hearing the voice, from *nil* to fifteen feet, in the course of two months.

Case 2.—Miss F. D. of Philadelphia, age 48, a private patient. Chronic attic suppuration, left ear; sole perforation in the membrana flaccida. May, 1890, excision of remnant of membrana and malleus; no trace of incus; entire cessation of discharge in twelve days; improved hearing for the voice; chorda tympani irritation (metallic taste) on side of operation for six months.

Case 3.—Helen S. of Philadelphia, age 13, private patient. Chronic suppuration of the atrium of the right ear; sole perforation in the membrana tensa. June 11, 1890, membrana and malleus excised. Internal face of membrana covered with granulations; manubrium of malleus destroyed by necrosis; discharge diminished; hearing for voice improved from one foot to six feet.

Case 4.—Mr. W. H. N. of Philadelphia, age 30, private patient. Chronic suppuration of attic and atrium; perforations in the membrana flaccida and the membrana tensa. Suddenly an attack of pain and great vertigo; increased deafness. June 17, 1890, the remnant of the membrana and the partly necrosed malleus excised. Cessation of discharge in the course of a year. Deafness unchanged; no return of vertigo.

Case 5.—Mrs. Chas. G. of Idaho, age 32, private patient. Chronic suppuration of the atrium, right ear. July 7, 1891, membrana and malleus excised; malleus handle necrosed up to short process; discharge ceased in two months; hearing for the voice greatly improved.

Case 6.—Rev. I. McC. of Massachusetts, age 37, private patient. Chronic attic suppuration; sole perforation in the membrana flaccida. September, 1891, membrana and malleus excised; a little pus found in the atrium; hearing for voice slightly improved; nearly total cessation of discharge in the course of a year.

Case 7.—Edna P. of Pennsylvania, age 11, private patient. Chronic suppuration of the atrium. Oct. 7, 1891, excision of the membrana and malleus; malleus handle eroded by necrosis; diminution of discharge; hearing for voice improved; death from diphtheria a month after the operation on the ear.

Case 8.—Grace H. of Philadelphia, age 20, private patient. Chronic suppuration of attic, aditus and atrium; total destruction of membrana flaccida and membrana tensa, excepting anterior half of latter to which the malleus was attached. The latter was seized by a polypus snare and removed without pain to the unetherized patient. Total cessation of discharge in a few weeks, until March, 1897, when I removed a small cholesteatomatous mass from the attic and aditus. The discharge has now ceased. There has never been any regeneration of the membrana in this case; hence the easy and perfect drainage in recent cholesteatomatous suppuration.

Case 9.—Miss E. G. of Maryland, age 20, private patient. Chronic suppuration of the atrium, and secondarily, of the attic; sole perforation in the membrana tensa, in the upper posterior quadrant; complicated by ozena. Removal of the membrana and the malleus, March, 1892. Hearing for voice slightly improved; discharge diminished.

Case 10.—B. B. of Philadelphia, age 12, hospital patient. Chronic suppuration of the atrium; sole perforation in the lower part of the membrana tensa; excision of the remnant of the membrana and malleus; cessation of purulency in the course of a month; improvement in hearing for voice from two feet to twenty feet for isolated words.

Case 11.—Dr. W. H. of Iowa, age 32, private patient. Chronic suppuration of attic; sole perforation in the membrana flaccida; hearing for the voice very poor; membrana and malleus excised Aug. 10, 1892; body of the incus was found adherent to the head of the malleus; stapes plainly visible and movable with probe; improvement in hearing from one foot to 15 feet for a whisper and diminution of the discharge after the operation.

Case 12.—Henry T. of England, age 30, hospital patient. Chronic suppuration of the atrium; sole perforation in the membrana tensa; excision of the membrana and malleus August 3, 1892. Deafness unchanged.

Case 13.—Miss Edith H. of Pennsylvania, age 16, private patient. Chronic purulent otitis media in the left ear for five years; no tinnitus; voice heard four feet; scanty offensive discharge; large posterior perforation in the membrana flaccida; malleus head and neck exposed; Nov. 30, 1892, I enlarged the perforation downward; atrium and attic found in free communication; cholesteatomatous mass as large as a pea removed from aditus after horseshoe incision about the manubrium; the latter was seized at the short process, with delicate foreign body forceps and removed alone as it was already detached by necrosis from the malleus neck; malleus neck and head found adherent to the inner surface of the scute of the squama; when removed with hook, the body of the incus was found adherent to malleus head by means of dense fibrous bands; hearing for the voice improved at once from four feet to ten feet; the discharge diminished in six months, but did not cease entirely; case withdrawn from treatment thereafter.

Case 14.—Harry P. of Philadelphia, age 9, private patient. Chronic purulent otitis media, right side, for several years; large posterior perforation in the membrana tympani with protruding polypi; Jan. 3, 1893, enlarged the perforation upward and backward; removed two polypi from region of aditus with an incus hook; after this clearance a central perforation was found in the membrana flaccida hitherto unseen and undiscoverable by a probe because of patient's great sensitiveness to touch in this region. Ligaments of malleus cut and bone removed; then the isolated long process of the incus was hooked out with the incus-hook; nearly the entire head of malleus had been destroyed by necrosis; its neck and short process were covered with fibrous bands.

This case has slowly grown better under the use of alcohol instillations and syringings. The only gain seems to be better drainage from the attic and antrum and within a year almost entire freedom from formation of polypi in the posterior part of the atrium.

Case 15.—Mrs. P. of Philadelphia, age 40, private patient. Chronic purulent otitis media in the left ear; neoplastic diaphragm with central perforation; no trace of malleus; excision of neoplastic membrana near annulus tympanicus; no trace of incus; stapes in position; cessation of discharge; improvement in hearing for the voice from one foot to six feet; regeneration of membrana without perforation in two months; remains well at present time.

Case 16.—Feb. 16, 1894; Charles M, age 15, private patient. Chronic purulent otorrhea, left ear, for many years; parents died of phthisis. Excision of thickened membrane and necrotic malleus; head of latter half destroyed; no incus found; attic filled with synechiæ and cholesteatomatous débris; lessening of discharge and improved condition of attic. Deafness unchanged.

Case 17.—March 7, 1894; Walter S., age 20, hospital patient. Copious chronic purulent discharge from the right attic and atrium; under ether removed two polypi and remnant of malleus; head of latter and part of the neck entirely eroded; nearly total cessation of discharge in a month; patient soon passed from observation.

Case 18.—March 16, 1894; Mrs. P. of New York, age 47, private patient. Chronic purulent discharge from left ear with large perforation in membrana flaccida; membrana tensa and manubrium intact and forming a pocket for pus; excision followed by entire cessation of inflammation and discharge in a year and a half. Deafness unchanged.

Case 19.—Oct. 15, 1894; Mrs. A. K., age 21, private patient. Chronic purulent otorrhea since childhood; attic and aditus involved; membrana destroyed; malleus and incus bound together by synechiæ; excised under ether; small cholesteatoma removed; hearing for the voice improved at once; total cessation of discharge in two months after operation; result has remained permanent.

Case 20.—Nov. 2, 1894; A. M., age 17, a negro, hospital patient. Chronic purulency of attic and atrium; hearing for voice two feet; large polypus removed from the right ear under ether; nearly total cessation of discharge in two months. Hearing unchanged.

Case 21.—Nov. 2, 1894; left ear of the above named patient. similar lesions; hearing for voice two feet; in the same etherization removed remnant of malleus imbedded in polypoid membrana; nearly total cessation in two months. Hearing unchanged.

Case 22.—Nov. 12, 1894; P. N., age 13, hospital patient. Chronic otorrhea, right ear, for four years; mastoid operation by another surgeon several years previous to my first inspection of case; continuance of otorrhea; membrana largely perforated; hearing on contact; under ether, excision of diseased membrana and malleus; total and permanent cessation of discharge in two weeks after operation. Hearing unchanged.

Case 23.—March 6, 1895; boy 6 years old, hospital patient. Chronic otorrhea, right ear, for some years; excision of membrana and malleus; large perforation through upper posterior wall of auditory canal into antrum large cholesteatomatous masses removed from attic and antrum; finally opened the mastoid cells to tip of process and removed foul débris from mastoid cavity, lying below line of perforation in canal wall into the antrum; entire recovery in a month; no record of hearing.

Case 24.—June 27, 1895; Mr. F. L., age 40, private patient. Chronic otorrhea, right ear, all his life; remnant of membrana retracted and malleus drawn up into empty attic; sole perforation in the membrana tensa; no incus visible; excision of membrana and malleus; latter eroded at tip of handle and rough over entire surface; total cessation of discharge in two months; hearing for the voice improved.

Case 25.—Feb. 29, 1896; Lizzie B., age 21, hospital patient. Chronic suppuration of the attic; complains of tinnitus and vertigo; large perforation in the membrana flaccida; neck of malleus visible; membrana tensa drawn inward; excision of remnant of membrana and malleus; head of latter destroyed; no incus found; cessation of discharge in a month and relief of vertigo; hearing unchanged.

Case 26.—Oct. 20, 1896; Miss G. of Massachusetts, age 40, private patient. Chronic attic suppuration for years; excision of adherent and partly necrosed malleus; cessation of discharge and improvement in hearing for the voice from one foot to six feet.

Case 27.—Nov. 27, 1896; Master A., age 17, private patient. Chronic attic suppuration for several years; large perforation in membrana flaccida; excison of membrana tensa and the manubrium of the malleus, which had formed the outer wall of a pus pocket; cavity of tympanum filled with granulations; nearly total cessation of discharge in four months under alcohol and acetanilid; deafness unchanged as yet.

Case 28.—Dec. 10, 1896; Mrs. F., age 40, private patient. Chronic attic suppuration for years in the left ear; perforation in membrana flaccida both behind and in front of short process; membrana tensa and handle of malleus removed. Marked lessening of discharge; deafness unchanged.

Case 29.—Dec. 29, 1896; Mr. M. J. K., age 30, private patient. Chronic attic suppuration after typhoid fever six years previous. Excision of membrana tensa and handle of the hammer; atrium free from disease; copious discharge from region of attic and aditus; lessening of discharge up to present time; deafness unchanged as yet.

Case 30.—March 27, 1897; Louis L., age 16, private patient. Chronic attic suppuration for eight years; large perforation into attic and aditus; membrana tensa and handle of malleus intact; scanty, thick and offensive discharge from attic; excision of membrana and manubrium; head of hammer eroded; atrium free from disease; bichlorid syringing for four weeks and then an alcoholic solution of acetanilid to May 10, when discharge ceased.

Total cessation of discharge occurred in fifteen cases, marked diminution in seven, and diminution simply in eight. Total cessation of discharge occurred five times within two months, three times in one month; four times in two weeks, and once in a year and once in a year and a half. In the cases tabulated as "marked diminution" the favorable change took place promptly. The ultimate results in several cases are not known to me as they have passed from observation, while two are still under treatment as they have been recently operated upon and it is hoped they will be added soon to the list of totally cured. In those tabulated as simply "diminished discharge," two have recently been operated upon and are still under treatment.

The physical appearances in all cases have improved even when the discharge has not ceased. Granulations have ceased to form, and the discharge has become more mucous than purulent. The hearing improved in eighteen cases, was unchanged in eleven, in which the atrium was the principal seat of disease, and in one case, that of a child of 6, the hearing was unrecorded. The attic alone was affected in nine, the atrium alone in seven, and the attic and atrium together in fourteen cases. Marked ear vertigo was present in Cases 4, and 25; it was due in Case 4, in my opinion, to an irruption of the chronic purulency into the vestibule, through the foot-plate of the stapes. This was demonstrated by the total deafness to all tests, in this ear after the cessation of inflammation and discharge. In Case 25, the ear vertigo was due to irritation about the stapes. In no instance has the stapes been resected or removed.

Alcohol instillations or alcoholic solutions of boric acid or acetanilid have proved most efficient in after treatment, as long as any signs of granulations were present. After these had ceased to form and the mucous membrane had become smooth, a solution of carbolic acid (2½ per cent.) or a solution of bichlorid (1-6000) acted best. In some instances when the discharge had become slight, simply mopping the fundus of the canal with absorbent cotton slightly singed seemed to perfect the cure. Case 14, has proved to be the most obstinate I have encountered; however, under the use of alcohol syringing at home, and alcohol moppings at my hand, granulations and small polypi have ceased to form in the attic and aditus. While preparing this article, Case 8 has had a recurrence of pain in her ear followed by the detachment of a lamellated mass of epithelium from the attic. The fundus is again entirely free from granulations and nearly dry under bichlorid mopping at my hand. When total cessation has occurred we may conclude that the disease was limited to the drum cavity and possibly the aditus. In those cases where the discharge has not materially lessened we may conclude that parts deeper in the mastoid have been and are still affected; perhaps less, however, than before drainage and antisepsis were improved by the operation. No case has been made worse by the operation, not even temporarily. Simply long continuance of the otorrhea in any of the cases noted above would justify a consideration of exposure of the middle ear cavities through the mastoid, as would also any appearance of so-called mastoid symptoms, which not one of them has shown since the operation on the drum cavity. The latter fact I think proves conclusively that so-called "excision" in chronic purulency of the ear by perfecting drainage from the attic and antrum, and facilitating antisepsis of these parts, tends to ward-off mastoid caries, sinus-phlebitis, cerebral abscess and pyemia, and should therefore precede any operation on or through the mastoid simply for the cure of chronic purulency of the middle ear spaces, especially in the absence of any urgent symptoms of mastoid necrosis and pain.

Certainly mastoid trepanation for the cure of chronic purulency of the middle ear will not succeed if the diseased tissues are not removed from the drum cavity at the same time, whereas purulency from the middle ear which has continued after a mastoid trepanation without excision of the diseased middle ear structures, will cease as soon as the latter operation is performed, as exemplified in case 22.

The hearing has been improved in fifteen cases, unaltered in ten, and in five instances it has been unrecorded. Among the cases of unaltered hearing are four recently operated upon; it is hoped they may be finally classed with those improved in hearing. Improvement in hearing has occurred seven times in which the attic alone was affected; six times in which the atrium alone was affected, and twice in instances of disease of both attic and atrium.

127 South 18th Street.

Let us defeat the Antivivisection Bill!

SOCIETY PROCEEDINGS.

The San Francisco Medico-Chirurgical Society.

Regular Meeting Feb. 7, 1898.

President, F. B. CARPENTER, M.D., in the chair.

After the transaction of routine business, Dr. CLINTON CUSHING read a paper on the subject of

CHOLELIATHIASIS

entitled a "Report of Two Cases of Cholecystectomy," in which paper the technique of the work was the main feature.

Dr. L. C. LANE—I saw the operation in the first case. It was extremely difficult. The gall bladder was small and adherent to the liver. It tore somewhat in being severed from the attachment. The bleeding was hard to control also, but it was finally stopped by making a large black eschar with the thermal cautery. The man is now well. There was no rise of temperature after the operation. The diagnosis was in doubt—the case had the appearance seen in malignant disease; and the pain seemed characteristic of it. The physician who first saw the case, diagnosed cancer of the liver. My experience is that you know more about that, when you cut in and see. The pain is probably the most intense of any disease. The mucous membrane of the gall bladder is in folds, and is similar in arrangement to the Archimedean screw. This is claimed by some to be a means of facilitating the passage of bile.

Dr. J. O. HIRSCHFELDER—In the case described it would seem impossible to make a diagnosis; the atrophy of the gall bladder, and the absence of icterus lead to confused ideas, and the sallow look of the patient would also have a tendency to lead me astray. But the typical cases present no difficulty in diagnosis. Internal abdominal pains, mainly in the right hypogastrium, but not clearly localized. (A cause of pain in the right side may produce pain in the left.) The characteristic symptoms is icterus, coming on about or within twelve hours after the onset of pain. No other condition will produce icterus so rapidly, and the reason is that on account of obstruction, pressure in the gall bladder rises and forces a more rapid absorption of bile into the blood. Between the attacks, sometimes, by palpation the stone may, but not often, be felt. The stone may not be found in the stools until four or five days after the pain ceases. I direct that the contents of the chamber pot be mixed with water, then well stirred and thrown upon an ordinary flour seive, and held under a running stream of water until all the material has been washed through, when the stones, if present, may be collected. If but one is found, and it is triangular in shape there are probably others not yet discharged from the intestine. In one week I have collected from a single patient fifty-six such stones.

The treatment need not necessarily be surgical. The object of treatment should be two fold: 1, increase the secretion of bile by administration of benzoates and salicylates; 2, induce contraction of the gall bladder if possible by administration of pilocarpin; by employing deep massage; by giving the faradic current with slow interruptions. I have seen results of value with the latter method.

Dr. G. R. HUBBELL—Some time ago a patient came to me, complaining of vomiting and pain in the abdomen immediately after eating. There were no other symptoms and the only sign was a tumor in the region of the pylorus. Examination of the stomach contents showed a full stomach seven hours after eating. The percentage of HCl was normal. Diagnosis was made of tumor of the pylorus. At the operation a stone was found in the common bile duct, but not closing it. The wall of the gall bladder was greatly hypertrophied and the stone had to be dissected out of the duct.

Dr. E. RIXFORD—In Dr. Hubbell's case, it was easy to pass a probe into the duct and reach the stone, but it could not be moved. By placing a finger in the foramen of Winslow and lifting up, the stone was dug out of the wall of the duct in which it was imbedded. The duct was closed with Lembert sutures. There was incessant hiccough for five or six days but otherwise no trouble during convalescence.

Dr. L. C. LANE—In 1854, when an interne, a woman came into my ward with a tumor of the liver. It was, in accordance with approved practice at that time, poulticed and finally opened, when a gall stone the size of a pigeon's egg was evacuated. After about three months the woman began to improve leaving behind her a legacy of gall stones amounting to nearly one hundred at the time she was discharged.

Dr. CUSHING—The study of this class of cases has proven to me three things of importance:

1. The pain is not so much in the region of the gall bladder, as in the abdomen generally.

2. The gall bladder is not necessary to the life of the individual, although Bouchard says we secrete as much bile as urine.

3. When there is an inflamed and ulcerating gall bladder we may have have a low continued fever lasting for months.

Dr. C. J. CROSS—Will the X-ray reveal the presence of gall stones?

Dr. RIXFORD—In Dr. Hubbell's case it did not. Gall stones are organic. In the radiograph the liver makes a deep shadow, the spine shows well above and below, but the site of the stones can not be distinguished from the liver shadow.

Dr. CARPENTER—I have tried to get a plate by having the rays obliquely arranged so as to have as little liver substance as possible intervening, but the results were failures to locate the stones although they were found present at the operations. Gall stones placed on the outside of the body did not show any shadow.

EXCISION OF THE TONGUE AT THE THYROID.

Dr. E. RIXFORD presented a patient whose tongue had been removed at the hyoid bone for malignant disease. Kocher's method had been used. Its advantage is the wide field opened by the incisions. A preliminary tracheotomy had been performed, followed by the ligation of the lingual arteries on both sides. A very little sloughing had followed the operation.

PULMONARY TUBERCULOSIS.

Dr. RIXFORD—I also report a case of pulmonary tuberculosis cured with oxytuberculin. The lady is very enthusiastic over the remedy of Dr. Hirschfelder, but did not wish to come to the society. The patient is a lady about 30 years of age. Several members of the family have died from tuberculosis. In 1896 she nursed her sister who died from this disease. The girl was sick about three months only. It was one of the most rapid cases I have ever seen. Soon afterward this patient became ill and came to me in April, 1897. This note was made at the time: "Both apices slightly dull; bronchial breathing in both; coughing is constant; night sweats; exhausted; gradually losing weight; temperature 99 to 101; sputum large amount and swarming with bacilli. I prescribed creasote and whisky. At the time I wanted her to submit to Dr. Hirschfelder's remedy, but she declined. She went to Auburn, on the American River, and stayed a number of months, gradually gaining strength and health. In October last she returned to San Francisco.

Her coughing, however, was very severe; sputum contained pus, but although I examined it three times, found no bacilli. Night sweats were still present and she complained of great shortness of breath. Although she was considerably improved she began the treatment with oxytuberculin, beginning with injections of 3 centimeters and gradually increasing to 10; in all she has used 500 cubic centimeters. She soon began to improve; in two weeks she noticed that her cough was less; in December there was no sputum whatever. By January 1 she had no cough, no night sweats and could run up stairs and take long walks. Recently she walked ten miles. January 16 the injections were stopped and she was discharged as cured.

I think it right that all such cases treated by this remedy should be reported, those that improve and those that do not, in order that we may add to the clinical experience with this remedy. This was a case not very far advanced, but with tuberculosis in the family history the chances of recovery were against her. There has been no return of symptoms to this time.

Dr. G. R. HUBBELL—I wish to report four cases treated with oxytuberculin which are much improved.

Case 1.—Mrs. M. D., age 43, came to my office Nov. 13, 1897. No family history of phthisis. Patient caught cold in January, 1895; since then has been coughing and expectorating. From March until January, 1896, had night sweats—none since; she has had several small hemorrhages and is short of breath on the least exertion; vomits every morning. Weight in health is 135 pounds; at present, 112. On physical examination the right apex was flat to the fourth dorsal vertebra; in the left to the third; anteriorily, the right was flat to the second rib and the left to the third. There was amphoric respiration and bubbling râles of both apices. The sputum contained a large number of the bacilli of tuberculosis. Temperature was, A.M., 100; P.M., 103. Treatment with oxytuberculin was commenced at once in daily injections of 10 c.c. At the end of a week the temperature was, A.M., 99; P.M., 102. She was able to walk up two flights of stairs without stopping, which she could not do when she began treatment; her cough is better and expectoration less; she retained her food without any discomfort. She returned to her home and I heard nothing further of her.

Case 2.—Miss J. R., age 30, who came to me November 9, 1897, gave the following history: One maternal aunt died of phthisis. One sister died of what was called consumption of the bowels. Patient had the usual diseases of childhood; was otherwise well until December, 1896, when she caught cold and began to cough; this has continued since and has been attended with profuse expectoration, blood-tinged at one time. In April patient had night sweats. At present she has dyspnea on exertion. Physical examination: Patient is poorly developed, illy nourished and pale; cervical glands slightly enlarged; thorax is moderately long, broad, moderately arched, deep; both supra- and infra-clavicular fossæ are sunken; left side moves more than the right; flatness of the right apex posteriorly to the third dorsal vertebra; flatness of the left apex posteriorly to the second dorsal vertebra; flatness of the right apex anteriorly to the second rib; flatness of the left apex anteriorly to the second rib; amphoric respiration of the right apex with consonant râles; bronchial breathing at the left apex; râles in various parts of the right lung; otherwise the physical examination was negative. Sputum contained a large number of bacilli of tuberculosis. Temperature, A.M., 100; P.M., 102. Since November 9 she has had daily injections of 10 c.c. oxytuberculin. At present she is working nine hours a day; coughs and expectorates very little; has gained one pound in weight; her temperature is normal and she says that she feels well.

Case 3.—Miss H. L., age 20. I first saw the patient April 12, 1897. One sister died of phthisis. Patient was well until three months ago, when she caught cold and has been coughing and expectorating since. Her weight in health was 138 pounds; April 12 it was 127. Physical examination: Patient is well developed, well nourished but pale. Thorax well formed; left side moves slightly more than the right on deep respiration; there is dulness of the right apex to the second dorsal vertebra, posteriorly; anterior, to the clavicle; dulness of the uppermost portion of the left apex; bronchial inspiration and expiration at the left apex; sputum contains a large number of bacilli; temperature, A.M., 100; P.M., 102.4. For a month she received daily injections of 10 c.c. of oxytuberculin. At the end of that time her cough and expectoration had diminished; her night sweats ceased and she felt well enough to discontinue treatment.

Case 4.—Mrs. R. M., age 43. No heredity. Patient was well as a girl, but would always take cold easily. In June, 1892, she came to this city and took a room previously occupied for a number of years by a tubercular patient. The house was very dirty and required much cleaning and sweeping. Nov. 13, 1892, she gave birth to her first child; three weeks later night sweats commenced and about six weeks after that she began to cough and expectorate. She gained in weight subsequently, but cough continued off and on until three weeks ago, since which time it has been much worse and attended with profuse expectoration, pain in the right side and chest and dyspnea. Physical examination: Patient is moderately developed, well nourished, but slightly cyanotic. Cervical glands are slightly enlarged, thorax is moderately long, broad, moderately arched, deep; right side moves slightly less than the left; there is dulness of the right apex, posteriorly, to the second dorsal vertebra, of the left to the first; dulness of both, anteriorly, to the clavicle. Over the anterior part of the chest the percussion note is hyperresonant. The upper border of the liver dulness is at the seventh rib and the lower border of the lung moves but little on deep respiration; bronchial respiration of both apices with mucous râles; over other parts of the lungs the expiration is somewhat prolonged and over the right lung numerous râles are heard, with a faint friction sound over the lower lobe. The sputum contains a large number of bacilli: Temperature, A.M., 99; P.M., 100. For about three weeks she has had daily injections of 10 c.c. of oxytuberculin. In the beginning she raised sixteen ounces of sputum in twenty-four hours; at present she coughs a little in the morning and occasionally during the day and raises about one and a half ounces in twenty-four hours. She has gained six and one-half pounds in weight and is not short of breath on exertion; she ran four blocks without the slightest discomfort.

In passing, I will mention another patient who was far advanced in consumption, being confined to her bed and short of breath even when at rest. At the urgent solicitation of her friends and relatives and against my wishes I treated her. Improvement is marked, her color is much better and two days ago she was able to go down town.

All the cases here reported had been treated with the usual remedies for phthisis—creosote and cod liver oil without any benefit therefrom; these were not discontinued. With the exception of one case all were well advanced and yet all improved and two are well on the road to recovery. I have had the satisfaction of observing cases cured by the use of oxytuberculin and not only was the cure absolute, but none so far have relapsed. In the so-called cures with creosote and various other remedies that I have examined, there remained some faint trace of the disease, but after cure with oxytuberculin all pathologic breath sounds disappear.

Dr. C. N. ELLENWOOD—I will report a case that I have treated for eleven weeks; a girl 27 or 28 years of age who came to me Nov. 16, 1897, in the fourth stage according to Dr. Hirschfelder's classification (dyspneic at rest). She had hemorrhages with persistent coughing and profuse expectoration and this had existed for about two years. She had been a delicate girl through childhood; menstruation had been irregular and none at all for the past six or seven years; she was emaciated and weighed about 100 pounds. The left lung much flattened and contained a large cavity; vesicular murmur heard only at base; right lung dull at apex; vesicular murmurs inaudible. The sputum was loaded with bacilli. I commenced with the daily injections of 4 c.c., increasing it gradually to 11. She has had these daily now for eleven weeks. In the beginning she had to be aided in ascending a flight of stairs, while now she walks up readily. She walks fifteen blocks easily. Her cough has disappeared for the most part, coughing only at intervals of four and five days. She has an expectoration of probably one-half ounce of sputum in the morning during the occurrence of coughing. The left lung is entirely flattened and there is an immense cavity. Her night sweats have disappeared for the most part; her complexion has wonderfully improved; this was observed after the first ten days; her appetite has also improved; she relishes her food and eats three or four times as much as before the treatment was commenced. There is marked improvement in the respiratory function. The right lung is the one she breathes with for the most part; very little action takes place in the left, yet respiration is becoming more and more prolonged. Her weight has fluctuated very materially, but still she weighs more than when she began; she is cheerful now, while before she was despondent. All in all she is very much improved by the oxytuberculin treatment. The bacilli have not disappeared, although they have diminished notably. I know of nothing else that would have given as great relief to this advanced case.

Dr. LANE—In my cases and those which I have observed, I have seen no abscess or any considerable pain beyond the simple puncture of the skin by the needle; sometimes a slight pain is complained of, but by massage upon the point of injection that disappears. I have not seen the inconvenience from the puncture that some have complained of.

Dr. WILLIAM FITCH CHENEY I have treated several cases with oxytuberculin, and one of these in particular has given positive proof of improved condition. He was well advanced in tuberculosis, with the upper third of one lung gone, bacilli in the sputum, and the patient in a pitiable condition. He had had tuberculosis for two or three years and had been under treatment by some of our well known physicians by the usual methods, the last treatment being creosote in large doses. This man began treatment with oxytuberculin in doses of 3 c.c., gradually increasing to 20. At the expiration of a month he had less dyspnea. His expectorations were easier and he was generally improved. I was not much encouraged by the improvement; furthermore, I wanted to make a test of the treatment and find out what had helped him. I then gave him codein for the cough and a mixture of cod liver oil, and told him to go a week without oxytuberculin. During that week he was not doing as well as before; still I was not satisfied, and would not put him back upon the other treatment. In three days more he returned and said that he must have oxytuberculin or he thought he would die. He was becoming very despondent; was coughing almost constantly, and at his urgent request I returned to the original treatment. Within a week he was much better. He now sleeps all night and can walk about town without the exhaustion he formerly had. I can not think that man can be made well, but he has been made comfortable. He was treated ten days with other medicines and was anything but improved till oxytuberculin was resumed.

Dr. HIRSCHFELDER—I have made distinct claims for oxytuberculin only in the first and second stages, before there is any shortness of breath on exertion; but, as these gentlemen have found, so I find in very advanced cases marked improvements occurring, and in some complete recovery from all symptoms, disappearance of the bacilli from the sputum and the return of the patient to perfect health. Where cavities are present they do not disappear but become smoother walled. In some cases the bacilli have disappeared from the sputum; the patient has lost the fever; strength has returned; there has been a gain in weight and results have been shown such as we might expeect from iodid of potassium in syphilis. I might cite many confirmatory cases, but I will merely call attention to a striking case illustrating what may be done in a field heretofore most disappointing:

J. A., aged 34, a tailor, was admitted to the City and County Hospital July 15, 1897, with the diagnosis of acute miliary tuberculosis. Dulness of the right apex to the second dorsal vertebra with bronchial respiration was found. The sputum contained large numbers of bacilli of tuberculosis. The urine, 32 ounces in quantity, with a specific gravity of 1016, was bloody and contained abundant tubercle in groups. The patient reported that he had been taken sick one week before and that he had been taken short of breath and weak. He was found to have general anasarca. His fever was high, ranging to 104 degrees. Injections of oxytuberculin were given and a rapid improvement in his condition took place. August 12 he reported that he felt better and thought he could breathe easier. His appearance was brighter. The edema soon disappeared. August 17 he got up and walked about the ward. The urine no longer contained blood nor bacilli, but the picric acid test showed a slight deposit. The fever had become lower, and September 10 the temperature became normal. Since November 14 there has been absolutely no elevation of temperature. The weight of the patient has risen from 133 pounds on August 28 to his present weight of 149 pounds. No bacilli of tuberculosis have been found in the sputum since December 30, and for two months past there has been absolutely no cough. Examination of the lungs fails to reveal the slightest sign of trouble. The urine is clear, although with Esbach's fluid a trace of albumin can be found. The patient's appearance is that of ruddy health, and he may be considered a case of cured miliary tuberculosis.

Denver and Arapahoe Medical Society.

Meeting of February 21, 1898.

THE DIAGNOSIS AND TREATMENT OF HEADACHES

was the subject for discussion. Dr. H. T. Pershing divided the various kinds of headache into groups, taking into consideration the practical convenience in every-day diagnosis: 1. Headache due to organic disease—meningeal hemorrhage, optic neuritis, myelitis, encephalitis, abscess, tumor, chronic meningitis. 2. Headache due to diseased blood vessels, arteriosclerosis, syphilitic endocarditis. 3. Due to causes outside of brain, membranes or vessels, as migraine, infectious fever, diabetes, uremia, uric acid diathesis, alcoholism, indigestion, plumbism, active or passive hyperemia, anemia, eye-strain, nasal headache, dental headache, neurasthenia and hysteria.

In treating headache due to syphilitic infection, mercury and potassium iodid should be administered, even in cases where the infection is at all doubtful. Arteriosclerosis calls glonoin in gradually increased doses to lower blood tension and for small doses of potassium iodid. Migraine is a very obstinate disease. Morbid conditions of the eye, nose, teeth, stomach or pelvic organs should be corrected, not with the view that they cause the disease, but because they irritate and exhaust the patient who is already sufficiently afflicted. The nerve treatment should be carried on during the intervals. Cannabis indica is more nearly a specific than any other drug. Beginning with one-twelfth of a grain of Herring's extract three times daily, the dose should be increased to the limits of easy toleration. The antipyretics may succeed for a few times but the dose must be rapidly increased and they soon fail to give substantial relief. The best treatment during an attack he considers to be codein and caffein. In headache due to the uric acid diathesis, the diet should be regulated. Starch should be interdicted. He has seen many cases of habitual headache permanently cured by abstinence from all forms of mush and porridge. The salicylates are as truly specific as potassium iodid, for syphilis. No antipyretics should be given in cases of neurasthenia or hysteria. The persistent use will make the general condition worse. As a sedative opium and cannabis should be administered. Iron is of use, if the hemoglobin is reduced. Mineral acids seldom do good and often do harm. In cases of extreme weakness, the rest-cure as systematized by Weir Mitchell, is of the greatest value. There can, however, be no doubt that his success is due to his personal power of controlling and happily directing the mental state of his patients. A physician who does not possess these qualities will very likely fail with the rest cure. The mental treatment of such patients is an art full of difficulties. Complete reassurance after a thorough examination is the first and most important step in a well considered course of treatment. The patient must be taught to avoid talking of sickness, and to persevere in trying to crowd out the depressing thoughts.

Dr. McLauthlin said that the majority of headaches are due to derangements of the alimentary canal, the headache being frontal and interocular tension present. The treatment should be the old reliable calomel. He does not feel that we have in the salicylate a specific in cases of uric acid diathesis. We succeed very often only to upset the stomach of our patient. In the headache of typhoid fever, quinin and alcohol should be avoided as they only increase the trouble. In chronic heart disease, aortic or mitral insufficiency, nitroglycerin will be found of advantage.

Dr. Levy spoke of the anatomy and physiology of the nose and the adjacent structures and showed how intrinsically they are connected, and therefore there is no wonder that in many cases the headache is traced to some derangement of the nasal passages or sinuses. He divided the pathologic causes into three groups, pressure, atrophy and diseases of the accessory sinuses. The atrophy which is an opposite condition to that of pressure, causes the headache by allowing the air to enter the lungs insufficiently warmed. The headache of the sphenoid sinus is quite distinct from those of the ethmoid and the antrum, the pain being localized at the center of the head and behind the eyes.

Dr. Foster discussed headache from the ophthalmologic standpoint. The weakened muscles without any organic trouble is a cause for headache. Hypermetropia, myopia, presbyopia and astigmatism were considered with reference to the one symptom of headache; glaucoma without special symptoms should not be overlooked.

Dr. Axtell spoke of the headaches due to kidney diseases. He said they were uremic, and that but few escape headache some time in their course. In any cases of migraine occurring after middle life, granular kidney should be suspected. The cause of the headache is to be found in the retention of excrementitious matters, plus thickening of the dura and pia in contracted kidney. The treatment was elimination.

Dr. Jayne took exception to the views of Dr. Pershing, who does not consider pelvic troubles causes of headache. He cited many cases which have been entirely cured from severe headaches by correcting the abnormalities in the pelvic region. He does not see any reason why the nose, the ear, the teeth should differ from pelvic organs in the causation of headache.

Dr. Warner spoke from the stomatologist's standpoint, and dwelt upon diseased pulp as a cause of headache.

Dr. Rothwell added from the leaves of his experience the headaches due to concussion where no organic trouble is perceptible, and chronic ossific meningitis. He touched upon the question whether the pain is located in the brain or in the meninges.

Dr. Hopkins considers that 90 per cent. of all cases are due to gastro intestinal derangement. In his experience he found headaches traceable to syphilis, which occurred early in the morning and were mistaken for gastric headache.

Dr. Stover mentioned the headaches due to disease of the rectum. He advocated static electricity as a therapeutic measure in headache not due to organic lesions.

Dr. Spivak reported a case of headache which was apparently due to an elongated uvula, the amputation of which relieved the patient.

Dr. Pershing, in closing the discussion, said that the difference of opinion between himself and Dr. Jayne lay in the pathology, but not in the treatment. Those who suffer from pelvic trouble are as a rule suffering at the same time from anemia and hysteria; and Dr. Jayne's cases can be explained on this ground. Besides, headaches are in a certain measure amenable to suggestive treatment. In many cases applications in the vagina or clipping the uvula are nothing else but suggestive treatment.

Drs. J. N. Hale and H. L. Taylor reported a case of partial dislocation of the occipito-atlantal articulation. A well-developed man, 26 years old, five feet ten inches high, weighing about 160 pounds, was lightly struck in the face and fell backward, striking his head upon the rail at the base of the bar at which he was drinking. He was dead before the arrival of the physicians. The postmortem showed, underneath the pia, much clotted blood. The brain was normal. The movement of the atlas by the finger inserted into the foramen magnum could be easily felt by the fingers applied posteriorly to the neck. There was no fracture. A ragged tear three-fourths of an inch long existed in the tissues binding the occipital bone to the atlas, and the right vertebral artery was entirely torn across just below the entrance to the cavity of the skull. Such cases are of extreme rarity, and only four cases are on record, those of Lassus, Palatta, Ballisson and Lariste.

Meeting of March 8, 1898.

THE RELATION OF WATER TO TYPHOID FEVER

was the subject at this meeting. The speaker of the evening, Col. J. W. Hill, E.C., of Cincinnati, said in part: "The best informed sanitarians of Germany are firm believers in the water transmission of certain diseases, chief of which are typhoid fever and cholera, and visitors from the United States to that country who may be interested in the hygiene of water are reminded of the fact that in certain cities of Germany where the water supplies are known to be of very excellent qualities, typhoid fever is scarcely known. Dr. William Osler of the Johns Hopkins University, Baltimore, is authority for the statement that typhoid fever is so rare in Munich that enough cases can not be had to illustrate the disease in the hospital clinics. Unfortunately, no large city in the United States can boast of a lack of typhoid fever. Epidemics of typhoid have been traced to polluted water, but they are more often traced to some other dietetic substance, such as milk, oysters, water cress, etc., but in nearly every instance the source of the infection is something that has acquired its virulence from water or sewage. It is possible that the typhoid bacillus and other bacteria of sewage origin may survive for a length of time in a sewage polluted soil, but is antagonistic to our general knowledge of this and the bacilli of nitrification to suppose that two organisms of such opposite tendencies could survive in a soil where vegetation was in progress. A sodden sewage-polluted soil might be too rank for the nitrifying bacteria and at the same time furnish favorable ground for some of the bacteria of sewage origin, among which may be found b. typhosus and b. coli communis. A theory propounded, but unfortunately not expanded fully by Prof. E. Ray Lankester of Oxford University has suggested the probability that the typic typhoid bacillus has no independent existence outside of the animal body, and the colon bacillus upon the introduction into the human system becomes transformed into the conventional organism which we occasionally find in the spleen of a typhoid subject. In other words, the typhoid bacillus is an exacerbated form of b. coli communis. He points to the fact that the colon bacillus is of frequent occurrence in water used for domestic purposes, while the typhoid organism has been very rarely, if ever, found in water, and argues that a disease so prevalent as typhoid fever must have its cause in an organism better known than the typic germ of Eberth, and that that organism, in his opinion, is bacillus coli communis. The evidence to shake our belief in the water transmission of this disease is very meager, while upon the other hand, in cities like Munich, where a very excellent water supply has been substituted for a supply known to be polluted by sewage, the typhoid fever rates have quickly fallen to a small percentage of those which prevailed before. These reductions, simply by changes in the character of the water-supply to a city, have been so great as 85 to 90 per cent., and even if the remaining typhoid can not be charged to water, it is obvious that water is responsible for the larger percentage of the cases and death rates from this disease. The colon bacillus is always in the human intestine, and if it is the primary form of the typic typhoid germ, why is it necessary to look for its origin in water? The cities of Germany are extremely solicitous about their water-supplies and of a list of 121 but one, Riga, depends wholly, and one, Frankfort, partly upon unfiltered river water. Of a total population in these cities of 13,607,000, nearly 98 per cent. either obtain their public water supplies from unexceptional sources or rely upon slow sand filtration to properly purify such water, and it is not known that the sources of the other 2 per cent. of this large population are of questionable quality. Filtration among the Germans is not limited to turbid and polluted waters like those of the Elbe and the Maas, but is applied to comparatively pure water like that of Lake Zurich and to what we would regard as very pure water, like that of the wells sunk in the sand dunes at Amsterdam and The Hague. Some people take comfort in the fact that the typhoid bacillus is not a water bacillus and can not survive in water for an indefinite or even a great length of time. It can not certainly exist in water for more than a short period, but it is capable of doing great damage even during these brief intervals of time. We might contend that the cause of typhoid fever and other so-called water-borne diseases is not certainly known, but it would be unsafe to assume that water in some undefined manner is not concerned in spreading these diseases. The fact confronts us, that with a marked improvement in the quality of a public water-supply, there is a lowering of the typhoid fever rates, and so well grounded is the belief that water is the chief agent in transmitting the organism of this and several other diseases that most investigators have abandoned search for the cause and are directing their energies toward methods of prevention. Every year a withering blast sweeps over the land, and in its wake lie thousands of human victims and tens of thousands of shattered systems. The malignity of this stalking specter may be greater one year than another, but its purpose never changes; human life is its constant prey and the flower of the land its choicest morsels. It is in our power to temper the blast and protect humanity from at least 85 per cent. of its ravages by remedies so simple that a child can understand them. Shall we do it?"

After the close of the lecture Colonel Hill illustrated by excellent stereopticon views three modes of water filtration: 1, The so-called continuous sand filter as exemplified in the filter beds of the London, Berlin and Hamburg water-works; 2, the intermittent sand filters as illustrated by the filter proposed by the Massachusetts Board of Health for the City of Lawrence; 3, the rapid mechanical sand filters used to a limited extent in this country, which requires a coagulant to make them effective in the removal of the finer suspended matter and bacteria in the water.

Col. A. A. Woodhull and Dr. Rogers followed briefly. The latter said that it was once an impression in Denver that the mountain streams contained the purest drinking water, but in many cases mountain fever, which is nothing else but typhoid fever, had been taken this way, and that twenty-five years ago when the population of Colorado was almost *nil*, and consequently could not have been ascribed to sewage pollution, the streams must have contained the germs of infection. Dr. Munn said that the success of the filter depended quite as much on the intelligence with which the filter was carried on as the method of its construction.

Maryland Public Health Association.

This meeting was held in Baltimore, Nov. 18 and 19, 1897. The sessions were held in the hall of the Medical and Chirurgical Faculty, and were presided over by Prof. Wm. H. Welch of Johns Hopkins College. The first paper was entitled

SANITARY ORDINANCES—POSTMORTEM,

by Dr. HOWARD BRATTON of Elkton. He said: Its application is hindered by: 1, legislation with penalties against uninstructed half persuaded people; 2, difference of opinion among experts and disagreements of doctors in regard to more occult beget a disbelief and indifference to less hidden dangers; 3, acquaintance with best equipped appliances beyond their reach makes them loath to inaugurate any system at all. Attempts to do too much are unwise and result in nothing at all being done. 1. Burial in a cemetery should always require a permit. 2. No burial at all in this particular cemetery or the town limits. 3. Cremation the only proper means of disposal. It is the duty of the medical profession to instruct the public on matters of disease causation. By constantly hammering on the subject of infection with the object lesson before the class they can secure the adoption of prophylactic measures indoors and out, where carelessness and ignorance are the rule rather than the exception; by health associations, by united and individual effort and popular lectures; by systematic study of hygiene and sanitary science in educational institutions. This has at least the advantage of an early start. In fundamental principles of cleanliness, drainage, ventilation, house building, the more practical fields of fixed knowledge. At a later period the questions of unsightly structures, unhealthy surroundings and immorality may be studied in the light of nature. Professors of esthetics may determine how far esthetic defects are interdependent. An unhealthy town is not necessarily immoral. Next is the need and importance of vital statistics, for foundation for health department; to attract and hold the attention of the people. Theoretic knowledge should be evidenced by practical and beneficial results; hence these must be placed before the public.

Dr. PURNELL F. SAPPINGTON of Govanstown made a report upon recent experiences with typhoid fever in Baltimore County. He alluded to soil, air and water pollution, the spread of the disease by neglect of preventive measures and improper treatment of excreta. He considers the disease chiefly caused by impure water, and treated best by cold water and care as to diet.

A member having alluded to the contamination of the drinking water by the pouring into a cesspool of a quantity of coal-oil, as having for a time compelled people to discontinue the use of the wells, but that as soon as the oil had disappeared so the water could be used, they returned to them as a supply for their houses, Mr. Chas. Hartshorne suggested the pouring into the cesspools of a quantity of permanganate of potassa, which, by producing in the infected wells the appearance of bloody water, would at once make them a source to be avoided.

The next paper was

ON POLLUTION OF SOIL AND WATER,

by Dr. J. S. FULTON, secretary of the Maryland State Board of Health. Some years ago in England a man buried a barrel of petroleum in his orchard. A series of wells averaging sixty feet in depth, and some as far as 900 feet away, were so affected by the diffusion of the coal-oil that even the cattle would not drink the water. In some parts of Maryland 90 per cent. of the private wells are found chemically unfit for use. In other parts a less proportion, but nowhere are so many as half the wells free from organic pollution. If the misuse which man makes of what he calls his land were permitted to work out its logical conclusions, the race would be extinguished. Man stupidly pours into his land as many as he has of the ingredients of a fatal prescription. Luckily, he is apt to lack the one thing necessary to complete the poison. When he possesses the deadly germ he flings it with the rest into the ground and feels no concern as to results. The consequences are more merciful than his conduct. He scatters, like a prodigal, the seeds of death, but kind mother Nature refuses the crop. He befouls the earth wherever he goes, but the sunlight, air, rain and countless hosts of living things are constantly busy cleaning up after him. It is only when he supplies more and worse dirt than these combined agencies can remove that outraged nature exacts the extreme penalty. The amount of scavengering accomplished by these silent, ceaseless forces is incalculable. Chemic examinations of the soil around and beneath old vaults show, in some instances, that within a surprisingly short distance the soil is pure. Widal and others poured quantities of pathogenic germs upon the earth at Granvilliers, and found that they rapidly perished. The bacteria of the soil are as a rule confined to a zone of from a meter to a meter and a half deep. The organisms of the upper earth are mortal enemies of the disease bacteria. Few disease germs have a good chance to survive in the soil under the changed conditions and in competition with the hardier organisms at home there. Direct sunlight is fatal to many species of bacteria. Drying kills many germs, while others are borne to destruction as dust in the air currents. Only a few harmful organisms, mainly those bearing spores, are able to withstand sunshine and dessication. The breeze which disperses a myriad of dried and inert plants may drop a few into soil fitted for their renewed activity. The sun, whose rays shriveled millions, warms hundreds into growth and releases other hundreds from the clutch of frost. The rain which buries some in the inhospitable depths of earth or sea, gives living drink to a parched few, and trickles into your well, supplying at the same time nitrogen upon which they feed. A vertical drain draws from an area having somewhat the shape of an inverted cone. How long its radius at the base may be is indicated by the coal-oil incident. Experiments have been made to determine the deeper radii, and it has been found that the angle of the drainage cone varies with the character of the soil and the rate of pumping. In fine sand, to pump out a foot of water depresses another well in the same stratum at a distance of twenty feet. In fine gravel, to pump out one foot affects a well twenty-two feet away. In chalk, one foot of depression is felt at fifty seven feet; in sandstone at 143 feet, and in coarse gravel at 160 feet. If water levels are disturbed at such great distances, then the drainage area must be wider at the surface than the coal-oil incident would indicate. That observation shows that upon such soil nine wells would drain a mile. A Baltimore brewer, who tired of buying water at meter rates, sank an artesian well, securing a fine flow. Another brewer, inspired by his neighbor's success, drove a pipe to the same depth and the first brewer's water disappeared, never to return. These observations all show that among a series of wells there are oscillations of current in the common water supply, the direction of the stream being deflected toward one well or another as each in turn is used. If A uses 200 gallons in the morning, he gets part of the water of B's well one hundred feet away. In the afternoon B pumps 200 gallons, A's well being drawn upon for part of that amount. As the well is filled by the draining from every direction, so from the points of deposit, human waste is dispersed in every direction. It is customary to set apart two or three spots for the collection of these matters, but it is questionable whether in many instances the soil is not more widely polluted than it would be by indiscriminate distribution. Where deposit on the surface is practiced, ordinary care being used to prevent undue accumulation, the area of impure soil is usually neither wide nor deep. Under favorable conditions the bacteria in the surface soil do all the necessary purifying. Sometimes even under unfavorable circumstances, as under and around long-used vaults, the pollution of the soil has been found to extend not further than six or seven feet. This must not be taken as a general rule, however, for there is a saturation point for all soils, and as the bacteria, like other plants, have their seasons, the saturation point is variable. The barriers may easily be passed, and when this occurs, soluble impurities will sink through the soil in ever widening circles. The area of pollution has a conical shape, base down. The width of the angle of pollution will depend upon the nature of the soil and upon its humidity. A wet soil diffuses chemic impurities widely. In a dry soil they sink more deeply. Impervious strata may conduct foul matter for long distances laterally. It is thus made plain that the attraction between accumulations of filth near the surface and the water in deep wells is mutual. The well exerts a steady pull, and the surface filth a steady push. Up to a high dilution, water increases the danger of soil contamination. For that reason, most pits are worse than surface closets. Shallow pits are good putrefaction vats, and in this process most of the contents become soluble. Cemented pits, if frequently cleaned are, so long as they remain water-tight, not offensive. But cement is soluble in sewage and the efficiency fails in a year or two. To remain water-tight, pits should be surrounded by at least a foot of well puddled clay. The grease from kitchen waste will preserve cement and keep a pit water-tight indefinitely. To the average suburban builder that is the chief reason for not admitting kitchen waste to the pit. Where water-closets are used, tight pits fill up very rapidly, and where sewer connections are impossible the expense of cleaning is a burden. This has led to the reprehensible practice of constructing cesspits of rough stone loosely laid in porous soil. Such rarely or never fill up and are said to be self-cleansing. They distribute vast volumes of foul water into the surrounding soil to be cared for by such agencies as chance or nature may provide, but so far from being self-cleansing, they are all befouling contrivances. Fifteen gallons or so of water with every discharge of the flush tank disperses filth much more widely through the soil than does the slow filtration of an ordinary vault or surface closet. When the service pipes of a water company are introduced into a house, the forsaken well is converted to a new purpose. The waste-pipes from closet and bath room are turned into it and it becomes the cesspit. It is a most economic procedure. The well is dug to running water and the local well-digger will tell you that all the wells in the neighborhood have a very perceptible current from northwest to southeast. Thus without scruple the subterranean stream, which is for many people the only water supply, is befouled.

Prof. A. C. Abbott of Philadelphia gave a very interesting lecture upon

DISINFECTION.

He mentioned the use of sulphur, its value when burning in the presence of water so as to be thoroughly oxygenized. To be effective, the agent, no matter what it is, must be brought into contact with the article to be disinfected. Carbolic acid spray he considered valuable though not effective. The cheapest is ordinary white wash. It is not poisonous, nor injurious to furniture or clothing. Corrosive sublimate is undoubtedly effective, but highly dangerous. Heat is a valuable disinfectant in all cases. The utmost precaution is needed to prevent the spread of disease germs from the sick room, generally by carelessness of the attendants. In all cases of infectious disease the patient should be isolated so thoroughly that no article from the sickroom can carry out the germs. Clothing should be soaked in carbolic acid solution before being sent to the laundry. When the patient is well, before being removed his body should be well cleansed and clothed in fresh clothing, before leaving the room. If he dies, then the body should be made completely free from the possibility of conveying the disease in its progress to the grave or other disposal, and in either case, the sick-room must be cleansed as to the furniture, hangings, etc., and disinfection practiced so as to make it impossible for another to contract the disease by using the room. Under all circumstances, such a room should not be used for at least twenty-four hours after the removal of the case.

Dr. W. Royal Stokes of Baltimore followed with a paper on

DISINFECTANTS.

He alluded to a few fundamental facts as to the objects which these agents are directed, then said: The outcome of our experiments has been the discovery of two important methods of destroying bacteria or, as it is technically called, disinfection. 1. By physical agents; 2. By chemic agents. Heat is perhaps the most efficient physical disinfectant, and when infected materials are of little value this actual destruction of, by burning, is the surest way. So radical a method has a limited scope, but we may in many instances apply heat and destroy the infection without injuring the infected material. Experiments have shown that disease germs are all destroyed by exposure to a temperature of 212 degrees or steam-heat for one hour.

In case apparatus specially designed for this purpose is not available, such materials can be rendered harmless by boiling for about one hour in ordinary boilers. Though such measures are sufficient for the ordinary household, it is often necessary in large hospitals, or at quarantine stations, to sterilize a great quantity of bulky goods at one time. Mattresses, pillows, clothing, blankets are placed in a steam-chamber and exposed to steam-heat until disinfected. Sunlight is Nature's disinfectant, and experiments have shown that direct exposure to its rays for a few hours will destroy such germs as tuberculosis, typhoid fever and diphtheria. The old method of exposing infected linen, carpets, etc., to the sun has thus been proven of value, and the rays of the sun must often destroy many of the bacteria present in infected hospital wards. This influence also is beneficial in destroying many of the bacteria deposited upon the surface of the earth, and even the upper layers of rivers must be somewhat purified by this agent.

The expectoration of consumptives should be deposited in a covered cup containing 5 per cent. solution carbolic acid, which soon kills the bacillus. The sputum can also be discharged into pasteboard boxes made for the purpose and cheap enough to be burned. Towels, handkerchiefs and all soiled linen from consumptives should be boiled or soaked in carbolic acid for twelve hours before being used again. The room should be dusted with cloth dampened with a weak carbolic acid solution in order to prevent the dust from rising, as well as to destroy the germs. Carpets should be swept with a damp cloth broom. For such diseases as typhoid fever, Asiatic cholera, where the intestinal discharges contain the infective germs, the stools should be immediately disinfected by pouring upon them an equal quantity of a 5 per cent. solution of carbolic acid, which should remain in mixture with the infectious material for an hour, before the vessel is emptied. The hands of nurses should be carefully disinfected after attendance upon the sick. Soiled linen should also be sterilized or burned. In diphtheria the discharges from the nose and throat are the chief vehicles of infection, and these can be received upon old linen cloths which are at once burned. If there is much expectoration it should be received in vessels containing carbolic acid solution. Bed clothing or linen which has been soiled by these secretions should be boiled, or disinfected by means of the last named solution. All articles which come in contact with the patient's mouth should be used exclusively by the patient and then carefully sterilized by boiling in a solution of common soda.

In such diseases as measles, scarlet fever, and smallpox, the same general precautions against the spread of the disease should be observed. All receptacles for intestinal discharges or urine should be cleaned by frequent flushings of water, and also occasionally disinfected with chlorid of lime. This is also an excellent material for the purification of the privy vaults or wells. It should also be used in large quantities upon garbage deposits or other collections of decomposing material. Streets and gutters should be frequently flushed with chlorid of lime. Formaldehyde gas destroys the germs of all these diseases. The gas is not poisonous, though extremely irritating to the mucous membrane of the eyes or respiratory tract. This may be avoided by rapidly opening the windows without drawing a full breath in the room, and by wearing closely fitting goggles.

(To be continued.)

SELECTIONS.

Soil Conditions and their Practical Relations to Tuberculosis and Other Infectious Diseases.—Dr. W. H. Welch, in the Baltimore *Health Magazine* (January) discusses the fate of pathogenic organisms which find their way into the soil. Although the nature of the relationship between the conditions of the ground and the prevalence of tuberculosis is not well understood, practical experience has shown that many localities have secured by good drainage of the soil, great reduction in the mortality from this most deadly scourge of the human race, a reduction amounting in some places to nearly 50 per cent. of the former death rate. Similar measures in Berlin and elsewhere have notably lowered the mortality among infants, particularly from summer diarrhea. Having once reached the soil, disease-producing germs may be conveyed to us in manifold ways. An important medium of transportation of bacteria from an infected soil is the water which we drink or use for domestic purposes. Among the various other ways by which harmful bacteria may reach us from contaminated ground it will suffice to specify their conveyance attached to particles of dust in the air, their transportation by flies and other insects, and by domestic animals, their presence upon vegetables, especially those eaten uncooked, and our own direct contact with the soil. It is evident that the possibilities of infection from soil contaminated with disease germs are numerous and often intricate. The list of diseases whose causation has been shown to stand under certain conditions in more or less direct relation to contamination of the ground with their specific germs is a long one. Among the more important may be mentioned malaria, typhoid fever, cholera, yellow fever, dysentery, tuberculosis and the summer diarrheas of infants. Experience teaches, unmistakably, that contamination with the soil with organic refuse favors the development and spread of such diseases as these, and that drainage and purification of the soil by proper systems of sewerage are among the most effective measures for their prevention. No more instructive illustration of the value of modern methods of public sanitation can be found than the inability of Asiatic cholera to secure a foothold during the last two European epidemics, in clean cities, with proper sewerage and water-supply, and its ravages in notoriously filthy or insanitary cities, such as Toulon, Marseilles, Naples and formerly Hamburg. Authorities have differed as to the relative value of sewerage and of water supply in influencing the prevalence of typhoid fever. We need not pause here to discuss this matter. Both factors are important, the drinking water usually the more important. But it is sufficient for our purpose to show that purification of the ground by proper disposal of sewage is one of the factors in determining a reduction in the occurrence of typhoid fever and other diseases. It is by no means an easy matter in all cases to assign to each one of the various recognized elements which go to make up an entire system of satisfactory municipal sanitation its due share in the beneficial result, for it rarely happens that one is introduced by itself alone, and the harmonious working of the whole system is often necessary to secure the best results from the individual factors, such as pure water-supply, efficient sewerage, good drainage, cleanliness of streets, improvement or removal of insanitary quarters, thorough sanitary inspection of dairies and food stuffs, public disinfecting establishments, hospital for infectious diseases, municipal laboratories, etc. In some instances, however, the conditions have been such as to furnish conclusive demonstration of the separate influence of the introduction of effective sewerage upon the death rate from typhoid fever.

A Modern Paladin and a Victor.—The *Scalpel* for November has a portrait of Mr. Victor Horsley of London, who was recently elected to the General Medical Council of his country. With it is a brief account of his professional qualifications and some facts relating to the vote that was cast at the election that made him one of the "direct" representatives of his fellows. The voting is done by mail. The number of ballots, or voting papers, sent out was 22,576. The voters returned 13,500, or 60 per cent. of these ballots within the proper time; 1050 ballots were too late or miscarried; 130 were defective; while 8061 or 35 per cent. were ignored. In other words, more than one-third of the electors appeared to be indifferent or not to take sufficient interest in the matter to cast its ballot. Mr. Horsley received 6946 votes; Sir Walter Foster 6112; the majority being 834. There were other candidates, but the balloting virtually concentrated on the two leaders. Mr. Horsley is classed as a London consultant surgeon rather than as a general practitioner, a fact that seems to be in the minds of some a root of bitterness; this possibly militated against a larger vote for him among the rural voters. Mr. Horsley's strong hold upon the profession appears to have come about in consequence of his ardor and efficient work in the Medical Defence Union. Mr. Horsley states that he will resign at the end of four years of his term, that being regularly for five years, in order to save the great expense that special elections involve, thus bringing to one balloting all the general representative candidatures for the five year period next ensuing. One writer not overconfident in Mr. Horsley's soundness of judgment has said of him that he is one of the most brilliant men in the profession, with the great advantage of youth. He has so distinguished himself in science as to have been elected, in early life, a Fellow of the Royal Society, and in surgery as to be one of its most original and enlightened leaders. Nevertheless, he has always manifested the utmost sympathy with the general practitioner and he has displayed for years the most keen interest in defending medical men from all unfair conditions and unjust laws. He has, as President of the Medical Defence Union, acquired an almost unrivaled knowledge of the weak spots in the Medical Acts and the deepest sense of what is required for the honor of medical practice. He speaks with great clearness and force. He is, in short, a very strong personality. Has he no faults? He has the very faults of his virtues; he is impulsive. Sometimes he is prejudiced and occasionally rather too aggressive. He is apt to be borne along with the very impetuosity of his perceptions and convictions. He may not improperly be styled a modern medical Paladin, for like the champions of yore, he is ready whenever necessary to march into the enemy's country, and he has proved himself to be a hard hitter when the time for the encounter has arrived.

The Woerishofen Water Cure.—The death of Pfarrer Kneipp has not closed his establishment. Among those who will try to hold together his important *clientèle* are his pupils Dr. Baumgarten, Prior Reile and Dr. Mahr. A letter-writer from Woerishofen states there are over 2000 patients taking treatment at that place. Dr. Baumgarten is a Prussian from the Rhine district. He is quick, energetic, and has the perseverance of the Prussian. For six years he studied and practiced the cure under the eye of Father Kneipp. He is a firm believer in it. His knowledge of German, French and English, together with his knowledge of the cure, brings him a large number of patients. After the doctor comes the prior, or rector of the Brothers of St. John, who, thirty in number, have charge of the large *Kurhaus* in Woerishofen. Prior Reile is his name. Six or eight years ago Father Kneipp determined to perpetuate his cure in Woerishofen by means of some religious order which would reside and always remain in Woerishofen. The order of the Brothers of St. John, who have many hospitals in Europe, accepted the offer to continue the cure. Father Kneipp built a very large *Kurhaus*, gave it to the brothers, and the general of the society placed the brothers of the *Kurhaus* under the direction of one of them, who was called Prior Reile. The prior was given the duty to heal all people who applied to Father Kneipp by letter. The prior often received 200 letters a day. He gathered around him a corps of clerks to take charge of the large correspondence during the last six years, while Dr. Baumgarten has been practicing the cure in the village. The business of the prior became such that it was found to be necessary for him to have the aid of a physician to help him to correspond about the cases brought before him. Dr. Mahr, a Bavarian, was brought from Munich, who also learned the cure from Father Kneipp; so that today Woerishofen has three men who have studied the cure under its inventor, and have practiced it under his direction. At present each of them has his own *clientele*, and their respective patients are more or less satisfied. Two thousand five hundred kur-guests are here from all countries, together with a sprinkling of the princelings and nobility of Europe, many of whom stand in need of the open air life and somewhat dogmatic handling and discipline to which they are pleased to subject themselves for a longer or shorter period. It may fairly be assumed that this "cure" will survive the loss of its founder about five years longer.

PRACTICAL NOTES.

Puncture of the Heart in Case of Air in the Veins.—Bégouin found that dogs and rabbits dying from asphyxia caused by the introduction of air into the veins were relieved and saved by puncturing the right ventricle, in which he concludes that the air accumulates. He suggests that human lives might be saved also in this way under similar circumstances.—*Klin. Therap. Woch.*, January 30.

Bouginage.—Dilating the Eustachian tube with a bougie introduced through a catheter, Grossard has found efficacious in curing tinnitus in 150 cases, applied three times a week for one to four weeks. It also improved the hearing in many.—*Presse Méd.*, January 26.

Carbolic Injections in Anthrax Infections.—A man with eczema of the ear became infected with virulent anthrax infection at the spot; fever, 104 degrees. In view of the threatening symptoms Natale treated the case with injections in the parenchyma of the part affected with a 2 per cent. aqueous solution of carbolic acid. The fever declined at once and in four weeks nothing was left but a small scar on the ear.—*Gaz. de Osp. e d. Clin.*, January 30.

Introduction of Mydriatics and Myotics into the Eye by Electricity.—In the cases in which the iris is rebellious to the action of atropin or eserin, if an electric current is passed through the eye, moistened with the solution, the effect of the drug becomes apparent at once. A current of two or three ampères will cause the absorption of a sufficient amount of a 1 to 300 solution to produce the desired result.—*Arch. d'Elec. Méd.*, June 25, 1897.

Disinfection of the Intestines.—In the disappointing search for a truly effective disinfectant, Lowenthal advises the investigation of the urine as a test for products of intestinal putrefaction. He has obtained with amiloform, which is decomposed in the intestines, developing formaldehyde, a marked diminution in the purtrefactive processes in the intestines. It also acts as an intestinal astringent.—*Berlin. klin. Woch.*, 1897, 49.

The Arterial Pressure in the Early Diagnosis of Tuberculosis.—A comparative study of the records of cases of chloro-anemia and tuberculosis at the Paris Charité for many years, all showing subnormal arterial pressure, has impressed upon Papillon the fact which he announces as a suggestion to others, *i.e.*, that when the radical arterial pressure of a chloro anemic patient is below 13 centimeters (Potain's sphygmomanometer), there is grave reason to suppose that she has incipient tuberculosis.—*Semaine Méd.*, January 22.

Iodoform in the Broncho-pneumonia of Measles.—Iodoform, 50 centigrams; cod-liver oil, 100 grams; spirit of anise, 2 grams. Commence with two teaspoons a day, increasing with the tolerance of the child. Combine with it inhalations of iodoformed turpentine. Gambardella reports that with this treatment the pulmonary symptoms and fever rapidly passed away, even when commenced tardily.—*Gaz. de Osp. e d. Clin.*, January 30.

The Constipating Effect of Atropin has been confirmed by G. Traversa by a series of experiments on horses and dogs. He therefore suggests that belladonna and its alkaloid are counter-indicated in constipation in man caused by atony of the intestines, but on the other hand they are logically indicated in saturnine colic in which the constipation is produced by spasmodic contractions of the intestines.—*Sem. Méd.*, January 22.

Intestinal Invagination in Infants.—Cordua reports twelve cases; two were cured by energetic massage, anemas and the insufflation of air. Five recovered out of seven operated on during the first two days; two died from shock. Three were operated after the second day, all dying from gangrene and consecutive peritonitis. From a review of 184 cases in literature, he concludes that in operating great care must be practiced to avoid hernia later. In a case of gangrene there should be resection, enterotomy, entero-anastomosis, but infants under a year can not stand such a serious operation and those over a year but little better.—*Gaz. de Osp. e d. Clin.*, January 27.

Double Hyposulphite of Sodium and Mercury in Syphilis.—A. Miceli states that he has been very successful with hypodermic injections of a solution containing 1 centigram of double hyposulphite of sodium and mercury to 1 c.c., the usual dose. This corresponds to 9 milligrams of metallic mercury, a larger amount than the 1 per cent. solutions of other hydrargyrics. The injections were very slightly, if at all, painful and no secondary effects were observed in the fifteen cases treated, while the therapeutic effects were prompt and patients gained in weight.—*Semaine Méd.*, February 2.

Agar Jelly in Dermatology has been found extremely useful as it dries and can not be rubbed off, while easily removed with water. No bandage is required, and it is not necessary to heat the jelly. Another advantage over gelatin is its non-retractility. For erysipelas Gallois prepares a jelly with water 100 grams; gelose, 1 gram; corrosive sublimate and tartaric acid, ää 10 centigrams. For external use. A thin layer is applied to the parts, renewed several times a day.—*Semaine Méd.*, February 2.

Quinin in Gonorrheal Arthritis.—Local applications are usually recommended, fomentations of turpentine possibly the most typic, but Maragliano administers quinin hypodermically and internally, as he considers it the best remedy against infections in general and also because the results of certain research seem to indicate that it has a specific action on the gonococcus. He rejects Bouchard's "pseudo-rheumatism" and Gerhardt's "rheumatoid arthritis," and endorses calling these arthritic affections by the name of the inducing affection.—*Gaz. de Osp. e d. Clin.*, February 6.

Glycosuria in Diabetes at Different Hours During the Day.—F. Schupper has been testing the glycosuria in the urine of diabetics at different hours and finds that the maximum is invariably between eight and ten in the morning, and the minimum during the evening and night. These results indicate that the patient can better support farinaceous substances inwards at night, and that test meals and examinations should be made early in the morning to determine the height of the pathologic process.—*Bul. d. Soc. Lancis. d. Osp. J.*, xxvii, 2.

Success of Injections of Calomel in Lupus.—Especially in old, tuberculous, ulcerating lupus, injections of five centigrams every tenth day produced remarkable cures, the improvement evident from the first. The lymphatic infiltration and exudation processes were arrested and retrogressed. Twenty-five cases are described in the *Ann. de Derm. et de Syph.* of January by Asselbergs, who considers calomel injections a most valuable adjuvant to the usual treatment. He observes that his success in the genuine non-syphilitic lupus deprives calomel injections of their hitherto assumed values as a diagnostic measure in syphilis.

Paraffined Gloves and Hands in Surgery.—C. Menge not only uses the lisle thread gloves recommended by Mikulicz, but he renders them impermeable to liquids, while retaining their flexibility, by dipping them into alcohol after they are well dried in the oven, then into pure xylol and then into xylol containing ten grams of soft paraffin in solution to each 100 c.c. This solution is slightly warmed and the gloves remain in it fifteen minutes, when they are wrung out and dried again. They can afterwards be sterilized in steam. He also recommends rinsing the hands in the paraffined xylol after the usual alcohol sublimate toilet, wiping as usual. The hands shine then a little as if varnished, but they are no more slippery than usual, and there is no unpleasant sensation from it. He proceeds then directly to his operation, or puts on the paraffined gloves outside.—*Semaine Méd.*, February 2.

Faure's Method of Suturing Hernias Without Buried Stitches.—J. L. Faure has improved on the Duplay and Cazin method described in the JOURNAL (Vol. xxvii, No. 26), by utilizing the split hernial sac for threads to suture the inguinal ring. The sac is slit its entire length into two pieces, and these are tied in a double knot which closes the peritoneum. The two ends are then passed back and forth through the tissues, lacing up the canal, and tied in a double knot at the other end. This method can only be applied when the sac is of a certain size and firmness, but in these conditions it proves more than satisfactory.—*Presse Méd.*, January 2.

Antipyrin for Diagnosticating Kidney Diseases.—Dr. L. Bremer, in a paper read before the St. Louis Medical Society, has expressed the belief that he has discovered a new method of diagnosing diabetic, pancreatic and kidney diseases by reason of the affinity of the blood and secretion of a diabetic patient for certain anilin dyes. His experiments demonstrated that the secretion of a healthy person has an absolute antipathy for the dye known as gentian violet. When the dye was poured into the secretion of a healthy person it remained floating upon the surface. When the same dye was poured into the diabetic urine it dissolved instantly and colored the whole fluid. The reaction of the dyes and acids upon the unhealthy secretions was most remarkable, showing the colors and sequence of the real spectrum, beginning with red at the base and ending with dark blue and white at the top. The blood of the subjects was affected in the same manner as the urine.—*Western Druggist.*

Flexion of the Spinal Cord Instead of Suspension in Tabes.—Eulenburg rather ridicules re-educating appliances, and advocates strongly the new substitute for suspension, stretching the spinal cord by bending the trunk forward at an acute angle with artificial, gradually increasing pressure (Gilles de la Tourette and Chipault). The patient sits with outstretched legs on a long, low table. A couple of leather straps are fastened to the edge of the table and pass around the trunk in a figure of of eight, crossing in front of the epigastrium and in the rear over the upper dorsal vertebræ. The ends hanging over the shoulders are fastened to a cross-bar, attached by a rope running over a drum, to a turning crank below. Pressure is regulated with a dynamometer. Applied for five minutes or longer, two or three times a week, he has not observed any inconveniences in his four months experience. It seems to be supported by the patients much better than suspension. The benefit was evident in the improvement in the ataxia and the disappearance of the lancinating pain, etc.—*Deu. Med. Woch.*, February 3.

Eucain as a Local Anesthetic.—At the Montreal meeting of the British Medical Association, Drs. Horne and Yearsley gave the results of the use of eucain as a local anesthetic in one hundred consecutive cases. The cases had to do with operations on the ear, nose and throat and are enumerated in the *Therapist* of January 15. They recommended 5 grain soloids of eucain hydrochlorid from which to prepare fresh solutions. For the examinations a 4 per cent. solution was used, and for the operations an 8 per cent. Upon the method of applying the drug depended largely the amount of anesthesia produced. It was found that in the case of the ear, a few drops instilled and kept in contact with the part to be operated on, by inclining the head, was more efficient than the use of saturated pledgets. The reverse was the case with the nose. The pulse was not materially affected in either rate or character, and in not a single case was there evidence that the cardiac action was influenced by the drug *per se*. It is true that eucain induces hyperemia on application to the mucous membrane, but this rapidly passes off, and in no case was there excessive hemorrhage following operations under eucain and not commonly met with in the use of cocain. It was found that in the presence of acutely inflamed tissue, *e. g.*, acute tonsillitis, pharyngitis, etc., there was an increased flow of saliva, but in a non-inflamed tissue this effect was not produced. As to the disturbances of sensation, more particularly in the case of the pharynx, eucain was less unpleasant and less marked than cocain, but more transient, subjective sensations being normal in about an hour.

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SATURDAY, MARCH 19, 1898.

LOCALIZED INFECTIOUS DISEASES AS A SEQUENCE OF SLIGHT INJURIES.

Medical witnesses and attorneys are very frequently called upon to consider the claims of persons who having been more or less severely injured by an accident, attribute the subsequent state of their health entirely to this cause and bring suit against the railroad company, or the parties causing the injury, for damages. In a certain proportion of cases it is a well recognized fact that the claims of the plaintiff do not hold good. In some instances, for various legal reasons, he is non-suited and in others is defeated even if the case goes on trial. In still other instances, the trial having been completed, the jury awards damages which may or may not be in excess of the requirements of justice. With those instances where the patient's health and activities are permanently and directly impaired by an injury received from the carelessness of a common carrier, we shall not deal. Our interest, in this editorial, centers rather upon those cases in which no serious external manifestation of the injury exists, and yet immediately following the accident grave disease or perversion of function in some of the internal organs develops.

One manifestation of internal injury without marked external symptoms is so familiar to physicians and lawyers that it need not be considered, for the literature which has already accumulated in regard to it is both exhaustive and exhausting. There is a class of cases which is technically grouped together under the head of traumatic neuroses, a complexity of symptoms which in many cases renders the patient deserving of the amount which he sues for and in other instances serve to defraud the defendant by reason of the fact that some of the symptoms of a traumatic neurosis can be fairly well aped by a malingerer. With those we shall not deal.

The question with which we especially wish to deal is indicated by the heading of this article, and our attention has been called to it in particular by a case recently on trial in one of the great cities of the Union, and by a very able paper by Dr. McDILL of Milwaukee, who writes in association with Mr. VAN ALSTINE of the Chicago, Milwaukee and St. Paul Railway (*The Railway Surgeon*, Jan. 11, 1898).

In the case which we have referred to, a man, by occupation a grinder, and suffering from the early manifestations of "grinder's disease" of the lungs, was thrown with considerable violence from the platform of a street car and struck upon his right shoulder and chest with so much force as to seriously bruise the tissues about the shoulder and the tissues over the ribs in the axillary line. Within the course of a week or two it was noticed that the man's health had become very much impaired. Shortly afterward evidences of pulmonary disease became manifest and thirty-five days after the accident the man died. At the postmortem examination no evidence of external injury was manifest. the ecchymosis resulting from the accident having been absorbed. One lung was found almost entirely consolidated and the other partially so. Scattered through both lungs were a number of large deposits of fine metallic particles derived from the emery wheels and the steel which he had been accustomed to grind.

Suit was brought by the administratrix of his estate, it being claimed that his ill health and death within a short time after the accident was the result of the accident. It was admitted by the railroad company that the accident had occurred, and that so far as the accident itself was concerned, it was responsible. The question which rested upon the medical experts for decision, was whether the pulmonary disease which eventually resulted in the man's death could be attributed to the accident, and the testimony was such that immediately after it was heard the railroad company sought a settlement, which was granted. It was testified that severe injury to the chest might very readily so impair the vitality of the lung as to cause the rapid spread of disease already existing, but very mild in character, or to render the lung peculiarly susceptible to any infection to which it might be exposed. If the consolidation of the lung, which finally resulted in the man's death, was due to a tubercular process, then it would be very easy to understand how a violent injury to the chest wall might so disorganize the inflammatory exudations, which had been thrown out around tubercular and metallic deposits that they might be broken down, thereby making open the pathways for general infection. On the other hand, it was possible that the micro-organism of pneumonia, always present in the upper respiratory passages of man, might find a ready soil for its propagation.

This testimony is of some importance in connection with cases of the character which we have mentioned and it is endorsed by a large amount of literature which has been accumulating during the last few years, particularly since accident insurance has become popular.

In McDill and Van Alstine's paper they quote much of this literature which bears both directly and indirectly upon the case that has been cited. Thus Spengler, in the *Deutsche Zeitschrift für Chirurgie*, Part 2, p. 1, 1886, showed that in about one-half of 136 cases of joint tuberculosis, there was a history of antecedent trauma, and Sabrazes and Binaud, in an article on "Tuberculosis of the Mammary Gland," assert that an accidental cause is necessary to start it. Then, too, Jaccoud, in the "Bulletin of the Academy of Paris," for 1896 has reported four cases of traumatic tuberculosis of the lung. In three of these the patients were healthy men before the accident and became tuberculous after suffering injuries to the chest. In two cases Jaccoud traced tuberculosis in traumatic pneumonia. Similar instances are quoted by McDill from Schilling, Wagner and others, and they themselves record a case of a young man of 26 years who after a severe injury died of catarrhal pneumonia, and a distinct line of injury could be traced from the skin through the pleura to the lung. Senn has also pointed out the close association between trauma as an etiologic factor and tubercular infection, and the fact that injury very gravely predisposes a part to infection by any micro-organism has been proved by a very large amount of experimental research. McDill and Van Alstine conclude, we think rightly, that clinical experience and experimental investigation show that infectious diseases often follow slight injury. They also believe that where negligence causes this injury and the injury proximately causes disease, both the injury and the disease are elements of damage in legal action. Two facts are to be carefully borne in mind in this connection, namely, that while on the one hand slight injuries may be followed by grave disease, on the other, patients learning of this fact may often seek to magnify the symptoms from which they are suffering, in order to obtain a verdict. It is necessary therefore for physicians and lawyers to remember that slight injuries may give rise to very proper suits for damage and careful notes of all such cases should, therefore, be kept, in order that a full history of the case from beginning to end may be at hand should suit be brought.

Let us defeat the Antivivisection Bill!

STATE AND COUNTY CARE OF THE INSANE.

The public care of the insane is now recognized in all civilized countries as an essential in some form or other, and the ideal system has been generally accepted as that in which the State at large assumes this duty. The State hospital or asylum of the present is an outgrowth of the humanitarian public spirit which revolted at the conditions under which the unfortunate lunatics formerly were kept in ill furnished and worse managed jails and poorhouses in which, in misery and filth, they dragged out an actively abbreviated existence. Undoubtedly the pendulum has swung to the other extreme in some instances; reformers are rarely conservative, and often are not broad-minded enough to see that by extravagance in their demands for a part they defeat their object as regards the whole; that a few of the insane are often thus housed in comparative luxury, while the great mass are in no wise improved in their surroundings or condition. The ambitions of architects and the satisfaction of local pride also have their part, and it may be political jobbery has also in some quarters had its share in favoring extravagance in asylum building with its consequence of enforced continuance of inadequate and irresponsible county care for a large portion of the insane. The result has been to some extent a reaction against the elaborate and expensive establishments of some years back, and attempts at less extravagant methods of caring for the insane. The necessity of State care has also been questioned, and in one State, Wisconsin, a plan has been devised and followed, which is claimed by its advocates to more completely meet the needs than any other as yet proposed. With the State hospitals for acute and violent patients they have in that State a system of county asylums, to which are sent the milder chronic cases that require less restraint, and are presumably hopeless as regards recovery, so that direct medical oversight and hospital care are not essential as far as they are concerned. The advantages claimed for this system of county care are, according to its advocates, who have brought over to their ideas certain philanthropists interested in this question outside of the State, first, its inexpensiveness as compared to the palatial State hospitals; second, a more normal mode of living for the insane, who are not usually accustomed to be housed "in palaces," more general employment of the inmates on the county farms, thus in a measure contributing to their own support; and third, that by it the State hospitals, relieved from the care of the chronic insane are the better able to devote their energies to the care of the acute and curable cases. They thus become more truly hospitals and not asylums or places for mere humane detention of a class that it is inconvenient or dangerous to permit to go at large.

There is no doubt but that these Wisconsin county asylums are a vast improvement over the average county poorhouses, such as are still to be found in most of the States, and which still shelter a considerable proportion of the chronic insane. That the Wisconsin plan is the ideal system it is claimed to be, is, however, seriously to be questioned. The argument against it is very well stated by Dr. R. M. PHELPS in a recent number of the *Northwestern Lancet*, in which he shows that the claims of greater economy is to a certain extent fictitious when the total cost of the care for the insane in the State is taken into consideration; that the average per capita cost of the county asylums by their own figures is not less than that of some of the best State hospitals of recent construction, and notably more than some, that the home-like surroundings are likely to be in a measure also fictitious, unless we are to assume that all the chronic insane in these establishments are to be selected from the laboring class, a sort of social classification that one would think might be objected to by the taxpayers and inmates' friends. The strongest point made in their favor is, he thinks, that there is more employment given to the inmates than is the rule in the State hospitals; but this fact is not a necessary one, and there are large State institutions where the ratio is higher than in these county establishments. The argument he makes for the large State hospitals as regards medical care may be a little surprising to some who are now advocating smaller establishments with more purely hospital functions, but it will probably be found, as he says, that the best medical and clinical work today is being done in the larger institutions.

Against the county asylums Dr. PHELPS addresses the following arguments:

First, the lack of direct medical supervision. That this is of some importance can be shown by the fact that with the best selection of cases, the fact that they are all more or less defective degenerates and if they do not succumb earlier they are subject to the changes and diseases of senility, is sufficient to show the need of more than the interrupted medical oversight they receive. There is no possible comparison of the death rate of these inmates in the county asylums with what it would be were they under the closer medical oversight of the larger hospitals, but there is very little doubt that it would be unfavorable to them. Treatment for improvement of mental condition is by no means useless with the so-called chronic insane, and the more experienced the alienist the less inclined is he to be dogmatic as to the absolute incurability of this class.

Another important objection made by Dr. PHELPS is the tendency to reversion to poorhouse methods. The economy of rural county officials is well known, and, though he does not allude to it, it must be in some cases a factor operating against the proper meeting of the real needs of the insane. Another objection is the necessary lack of means of classification in these smaller asylums and the consequent congregation of the disturbing and untidy with the others in these poorly equipped and attended establishments. The oversight of a board of control or of charities, who are fully committed to the advocacy of the system, is hardly as sufficient an assurance against all possible abuses as might be desired. It would be better to have this function deputed to its critics, or at least to those who from long experience with all the methods of caring for the insane in hospitals in the State and elsewhere, could intelligently judge the merits and deficiencies.

Dr. PHELP's paper brings out strongly some of the leading drawbacks of the Wisconsin system, which is not, in any true sense, an ideal one, though where economic or other reasons prevent a better provision, it may serve a useful purpose. With thoroughly honest and economic methods in the State care of the insane, there is little to be said in its favor, even as regards expense, and that little is more than compensated for by the general results of enlightened medical care, which must necessarily be somewhat lacking in the county institutions.

THE GIANT CELL IN HEALING TUBERCULOSIS.

The morbid anatomy and histology of the essential lesion of tuberculosis have long been known, and while sixteen years have elapsed since KOCH'S discovery of the specific parasite of tuberculosis, still, in the face of a vast amount of study, many questions relative to the source, the conduct and the fate of the elements of the tubercle remain unanswered. The giant cell of the tubercle—that prominent and well-known object—what is its origin and its destiny? The genesis of this element is still unknown; indeed, it is a point upon which such brilliant investigators as LANGHANS, BAUMGARTEN, WEIGERT, KOCH and METCHNIKOFF hold diverging opinions.

In the progressive and destructive form of tuberculosis the giant cell dies and becomes a part of the cheesy mass of necrotic material so evident in advanced tuberculous lesions. In case the destructive tendency of the infection becomes arrested from attenuation in virulence of the invading parasite, or from unusual resistance on the part of the tissues of the host, and a reparative process ensues, what then becomes of these monstrous multinucleated cells so abundantly present?

It is this question concerning the fate of the giant cells in healing tuberculosis that HEKTOEN (*The Journal of Experimental Medicine*, Vol. III, No. 1, 1898) has recently investigated. As material for his careful study the author was so fortunate as to obtain specimens from a case of spontaneously arrested tubercular leptomeningitis in an adult man; certainly a peculiarly suitable object for observation. The clinical conduct of the case was such as to lead to a diagnosis of syphilitic brain disease, but the anatomic and histologic evidences pointed more strongly to a tubercular meningeal affection, and the question as to the nature of the infection seems to have been set at rest by the isolation and cultivation of the tubercle bacillus from the meningeal exudate, and by the discovery of a very few tubercle bacilli in stained sections of the pia-arachnoid. As to the reparative tendency of the process the writer presents six propositions, based on histologic evidences, to prove that the lesions are progressive and not regressive ones.

In this investigation Hektoen has centered his attention upon the giant cells in these apparently healing tubercles, and by a painstaking study of these elements in serial sections and in various situations, concludes that in healing tuberculosis the giant cell does not degenerate, is not absorbed or destroyed by phagocytes, but that its nuclei resume activity, as shown by their heightened affinity for nuclear dyes, and that the protoplasm becomes vacuolated and subdivided until, *from the giant cell, many small but perfect mononuclear cells arise.* From this it would appear that the giant cell, originating as a defensive histologic element to combat the invading tubercle bacillus (providing it does not succumb in the struggle), disposes of its ingested bacilli and, after a period of recuperation, subdivides into numerous small and apparently functional cells which seem to be identical with the formative endothelial cells of young connective tissue. Hektoen does not witness a complete reparative process in all giant cells, since in certain of these bodies necrotic processes like dispersion and solution of nuclear chromatin seem to occur in the same cell in which the new elements are forming.

If we are to believe in the indelible histogenetic impress which is assumed to be an attribute of the cell and its nucleus in regeneration of animal tissues, then these phenomena as interpreted by Hektoen would offer a strong argument for Metchnikoff's view of the origin of tubercular giant cells from the fusion of mononuclear endothelial connective tissue cells, or from the multiple nuclear division of these cells. Its period of unusual exertion successfully ended, the giant cell returns to the elements which gave it birth—assuredly a very pretty example of that adaptation which nature so bountifully provides in the animal organism to meet the destructive agencies of disease!

EPIDEMIC CEREBROSPINAL MENINGITIS.

Recent medical journals contain articles embodying the results of the anatomic and bacteriologic studies of a recent epidemic of cerebrospinal meningitis in Boston, by Councilman[1] and his associates Mallory and Wright.

These reports furnish important additions to our knowledge concerning this disease, as it occurs in America. This disease has appeared at various times in this country. Thus, it raged in Medfield, Mass., in 1806, extending over the New England States into Canada, Pennsylvania and Maryland, prevailing at some point or other until 1816. This epidemic corresponds to the first period of the history of this disease, according to Hirsch.[2] The second period extends from 1837 to 1850, during which time the disease prevailed principally in France. The third period from 1855 to 1875, when the disease prevailed chiefly in Germany; but there were a number of local epidemics in America, one in Illinois, reported by John B. Hamilton, 1873 to 1874,[3] and the fourth period, 1875 to the present time, during which time the disease has appeared in small epidemics in a great number of places. Thus, there was a considerable epidemic in Boston in 1874; in Lonaconing, Md., in 1892, and in New York in 1893. In this connection reference may be made to the report on epidemic meningitis published by Alfred Stille[4], in Philadelphia in 1867, in which he describes the disease as he had occasion to observe it during an epidemic which ravaged the United States for ten or eleven years previously. Stille saw 120 cases of the disease during the first quarter of 1867, in the Philadelphia Hospital. One hundred of these cases form the subject of a valuable report by Dr. Githens[5].

It is interesting at the present time to read Stille's description of the anatomic characteristics, and of the causes of the disease, as they were taught at that time. Stille summerizes the attempts of Baudin[6] and others to prove the contagious nature of epidemic meningitis, by saying, that they fail most where most they need strength, namely, in the proof that the disease is ever communicated from man to man, and without that proof there is no evidence of contagion. One fact to which all American and European writers bear testimony, is the extreme rarity of its attacking physicians and nurses in attendance upon the sick, and those patients affected with other diseases who occupy adjoining beds in hospital wards. He says that we may know some external influences that appear to favor, but we know of none that are essential to, its generation.

During the winter and spring of 1897 there prevailed a small epidemic of the disease in Boston, and in the articles published by Councilman, Mallory and Wright, 111 clinical cases are considered. The largest number appeared in March, April and May. Here also there was found but very little evidence in favor of actual contagion. As a rule but single cases appeared in the same family and in the same house. A map of the city, giving the distribution of the single cases, showed them to be well scattered. There is but little in the literature concerning the subject of immunity in this disease, and the problems of genesis and of the mode of infection are therefore still open for study.

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[1] Boston Medical and Surgical Journal, 1898. Johns Hopkins Bulletin, 1898, and American Journal of Medical Sciences, March, 1898.

[2] Quoted by Councilman.

[3] New York Medical Journal, Vol. xxi, p. 118, 1875.

[4] Stille, Epidemic Meningitis, Philadelphia, 1867.

[5] American Journal of Medical Sciences, 1867.

[6] Quoted by Stille.

The mortality of the 111 Boston cases was 68.5 per cent. The exact cause of cerebrospinal meningitis was first described by Weichselbaum[7] in 1887 as a diplococcus, which he calls the *diplococcus intracellularis meningitidis*, because in the lesions it is found almost solely within the cells. In the cultures this organism grows singly, in pairs and in fours. It is pathogenic to guinea pigs and rabbits, producing serofibrinous inflammations when injected into the serous cavities. Not much attention was paid to this demonstration by Weichselbaum until 1895, when Jäger[8] found the same organism in twelve cases of epidemic cerebrospinal meningitis occurring in the garrison at Stuttgart. Jäger's description corresponds very accurately with that of Weichselbaum.

The most important result of the study of the Boston epidemic lies in the demonstration that in thirty-five of the cases in which postmortems were made, Weichselbaum's diplococcus was found in thirty-one. Three of the four negative cases concerned very chronic instances of the disease. As a rule the organisms were easily cultivated in the acute cases, although it was soon found advisable to make a large number of inoculations, because the microbe evidently loses its vitality rapidly. The descriptions of the cultures and of the histologic lesions given by Councilman correspond in the main to those already published. Mixed infections with other organisms were not uncommon. The pneumococcus was found seven times; Friedländer's bacillus, the staphylococcus and streptococcus occasionally occurred.

In fifty-five cases lumbar puncture of the spinal canal was made during life, and in the fluid obtained diplococci were found in thirty-eight cases. The average duration of time from the onset of the disease to the date of spinal puncture was seven days in the positive cases, and seventeen days in the negative. On the whole, too much can not be said of the importance of lumbar puncture in making a diagnosis of the disease. There should always be made a microscopic and bacteriologic examination of the fluid, in order to ascertain exactly what organisms are present, because this knowledge is certainly useful in making the prognosis. Meningitis, apart from the epidemic form, is commonly caused by the tubercle bacillus, the pneumococcus and the streptococcus. Naturally these cases of meningitis are usually secondary to infection elsewhere. In a series of cases of this kind referred to by Councilman the pneumococcus was found ten times. Councilman and his collaborators express the important opinion that all the infections of the meninges, other than with the diplococcus intracellularis, are fatal. The complete proof of this can not be determined except by microscopic and bacteriologic examination of the exudate during life by spinal puncture. If tubercle bacilli, pneumococci or streptococci could be found in a case of meningitis which recovers, it would settle the point. Clinical observation alone can not do it. As the cases of epidemic meningitis become chronic and tend toward recovery, the fluid withdrawn by puncture, hitherto purulent, becomes clear and the number of organisms present diminishes very rapidly, hence the prognostic significance of repeated puncture.

This is not the place to enter into a lengthy description of the histologic changes found. It is interesting to note the condition of the lung, however, on account of the relation which is very generally supposed to exist between epidemic meningitis and pneumonia. In thirteen cases there was congestion with more or less edema; in seven cases there was bronchopneumonia, most marked in the lower posterior part of the lung. In two cases there was a characteristic croupous pneumonia, and in the lung of these cases pneumococci were found. In eight cases lung changes due to the diplococcus intracellularis was found in the form of small bronchopneumonic foci. In one case the consolidation was so extensive that it might easily have been considered as a typic croupous pneumonia. The lung complications due to the pneumococcus may, according to the statistics of the Boston epidemic, take place in almost any period of epidemic meningitis. Thus, in one case pneumonia developed after the meningitis had existed for seventy-four days.

From these and other investigations it appears definitely settled that the disease known as epidemic cerebrospinal meningitis is caused solely by the *diplococcus intracellularis meningitidis* of Weichselbaum, which must be looked upon as a distinct and separate species of micro-organism and not merely a variety of the pneumococcus. Furthermore, that great care must be exercised in attributing leptomeningitis when it occurs in connection with croupous pneumonia to an infection with the pneumococcus alone, because instances of mixed concurrent infection with these two forms of diplococci appear to be not so very infrequent. As already indicated, the manner of infection in epidemic meningitis, the distribution outside the body of the specific micro-organism, and other questions concerning the origin of the disease, merit further investigation.

CORRESPONDENCE.

"The Humane Society Deal in Fiction."

REPLY TO THE STATEMENTS MADE BY THE PRESIDENT OF THE WASHINGTON HUMANE SOCIETY IN A LETTER ADDRESSED BY HIM TO EACH SENATOR OF THE UNITED STATES.

Baltimore, Md., March 7, 1898.

To the Editor:—In your issue of March 5 (p. 565), you publish under the caption "The Humane Society Deal in Fiction," a letter addressed by Mr. A. S. Pratt, the president of the Washington Humane Society, to a well-known Senator, urging him to vote for the antivivisection bill now before Congress. A letter with the same contents was sent to each Senator. In compliance with the request of one of the Senators that a reply be made to the statements of Mr. Pratt, I have sent this Senator a letter from which I beg to send you the following extract. Most of the points were covered more fully in my paper "Objections to the Antivivisection Bill," published in the Journal of the American Medical Association, Feb. 5, 1898, and published also as Senate Document 104, 55th Congress, second session. Mr. Pratt, I am informed, is engaged in the insurance business in Washington.

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[7] Quoted by Councilman *et al.*
[8] Centralbl. f. Bact. u. Parasitenkunde, 1895.

Very Respectfully, William H. Welch, M.D.

1. Senate bill 1063 is correctly described as an antivivisection bill, and the only reason which Mr. Pratt or any one else can have to assert the contrary is that it does not totally prohibit all experiments upon animals. It originated with the Washington Humane Society, a notoriously antivivisectionist organization, whose president (Mr. Pratt) says in his annual report for 1894 (p. 24): "The subject of vivisection has been frequently before your executive committee during the past year and but one sentiment has been expressed, viz., that of utter abhorrence and condemnation of the inhuman practice." The great majority of the advocates of the bill are antivivisectionists.

The great body of medical and scientific men of this country are practically unanimous in opposition to the bill, not a single medical or scientific society having expressed itself in favor of it, whereas considerably over a hundred such societies, including all of the important National and State and many local societies, have passed resolutions remonstrating vigorously against its passage.

The bill is an antivivisection bill not only because it originated with and is advocated by antivivisectionists, but also because it prohibits many important and useful kinds of experiments upon animals, surrounds the performance of others with such restrictions as virtually to prohibit them, and in fact permits no experiments whatever save under extremely vexatious conditions. The contention so much insisted upon by advocates of the bill that it is not prohibitive of any useful experiments can not be admitted for a moment by any one acquainted with the bill and familiar with the purposes and needs of experimental medical and biological science.

2. The summary of the provisions of the bill given by Mr. Pratt in the second paragraph of his letter is grossly incomplete and misleading. Among the objectionable provisions of the bill which he does not mention are:

a. No one, except an officer of the government of the United States or of the District of Columbia, can perform an experiment without first procuring a license from the Commissioners of the District, who can refuse all such applications if they choose to do so. It would be difficult to show what qualifications these Commissioners possess, or are likely to possess, to enable them to judge of the fitness of medical and scientific men to make experiments upon animals.

b. In addition to a license, a special certificate must be procured in case any one of certain commonly used animals is to be employed for experiment.

c. The Commissioners may call at any time upon experimenters (including officers of the United States Government) for reports upon the methods and results of their experiments, and the official inspectors are required to publish the results of their observations. Many important experiments would not be undertaken under any such vexatious conditions as these.

d. The Commissioners may require any place where experiments are performed to be registered. They may disallow or suspend any certificate without any hearing on the part of the holder. In a word, the Commissioners are made the dictators of the medical profession in matters requiring expert knowledge and sympathy with the needs of medicine.

e. With the exception of certain demonstrative experiments for lectures, the only experiments permitted by the bill are those intended for the advancement of knowledge by *new discovery* and this knowledge must be of one of two kinds, either physiological, or for saving or prolonging life or alleviating suffering. This excludes such experiments as those often practiced by the surgeon to acquire skill in operating and those for the confirmation of alleged discoveries by others.

f. The bill permits the use of only two anesthetics, ether and chloroform. There are other anesthetics, in some cases essential for the purposes of the experiment, and it is absurd to prohibit their use.

g. With the exception of inoculation experiments, tests of drugs or medicines and tests of surgical procedure, no animal is permitted to survive after an experiment unless kept continuously under the influence of ether and chloroform. This provision prohibits a large number of important and useful experiments.

h. The bill prohibits the granting of a license to any one under 25 years of age, unless a graduate of medicine duly authorized to practice medicine in the District of Columbia. As Dr. Dabney has pointed out this excludes a large proportion of well trained biologists such as are employed in the Bureau of Animal Industry.

The foregoing are only some of the objectionable provisions of the bill which Mr. Pratt neglects to mention. This bill is in fact a very complicated measure, loosely drawn and doubtful in the interpretation of some of its provisions, and calculated to inflict most serious injury upon the progress of medicine and biology in this country. It is copied in large part from a British law, but goes further in its restrictions than the latter, which has proven to be most injurious to medical science in Great Britain. The whole impulse for this legislation started among antivivisectionists in England some twenty years ago, but thus far other countries, including our own, have been spared such an infliction.

3. Mr. Pratt is in error when he asserts that "ordinary inoculation experiments are expressly excluded from the operation of this law." The only concession regarding this class of experiments is that they may be made without the administration of anesthetics. All of the other vexatious provisions of the bill apply to inoculation as well as to other experiments.

4. Accusations of "revolting cruelty and barbarity" in the performance of scientific experiments upon animals, of which Mr. Pratt and the Humane Society profess to have "certain knowledge" are made in the most reckless and wanton manner by antivivisectionists. Mr. Pratt's statements with reference to alleged cruelty and secrecy in the performance of experiments in the District of Columbia and elsewhere in this country are unsupported by evidence. Not a single authenticated example of such cruelty, that is, the heedless infliction of pain, has he or any one else been able to adduce in the District of Columbia. The Superintendent of Public Schools of Washington, in a letter dated April 24, 1896, has officially stated that no vivisection experiments are performed in the public schools of that city, and that they never have been performed there. Those who have the best opportunities to know the real facts are confident that no cruelty exists in the performance of animal experimentation, which would justify any restrictive legislation whatever in this country. If any instances have occurred, they are certainly most exceptional, and are quite within the power of public opinion, including that of the medical profession, aided by the ordinary law, to cope with.

5. The charge of secrecy in the performance of animal experiments is without foundation. These experiments are published in scientific journals with full details, and any properly qualified person has free access to laboratories where such experiments are made. The scheme of inspection provided for in this bill may readily lead to a system of outrageous espionage utterly foreign to our system of government, and degrading and intolerable to the scientific men who conduct the experiments.

6. Mr. Pratt's utterly baseless and absurd, I do not hesitate to say wicked, charge that members of the medical profession are educated to "utter indifference to the infliction of pain and the sacredness of human life" and subject the sick poor in hospitals to experimentation, is an example of the recklessly false assertions of antivivisectionists. It is inconceivable that statements of this character, which fairly represent those upon which the antivivisection agitation is based, should be allowed to influence legislation in the Congress of the United States.

7. Mr. Pratt's argument that experimenters, because they do not concede any abuse of vivisection in this country justifying the proposed legislation, should be willing to submit to the provisions of such a bill as Senate bill 1063, seems to me too absurd to require comment.

8. Medical and scientific men very naturally and properly object to penal legislation directed exclusively against them in the conduct of investigations which they believe to be of the utmost importance to scientific and practical medicine and therefore to humanity. The District of Columbia already has an effective law for the prevention of cruelty to animals, which permits only properly conducted scientific experiments under proper authority. Those who conduct experiments are no less subject to this law than other members of the community. No special or class legislation on this subject is needed and such legislation is offensive in the extreme.

9. It is true, as Mr. Pratt states, that Senate bill 1063 was reported unanimously by the Committee on the District of Columbia. I believe that I am correct in stating that this matter was left by his colleagues on the Committee very largely in the hands of Senator Gallinger, who would seem from his report on the bill to be an extreme antivivisectionist. He must by this time realize that in this matter he has antagonized the sentiments of the great majority of medical and scientific men of this country. There never was an adequate presentation of the arguments against the bill before the Committee. I have information that at least some members of the Committee have changed their opinions and are now opposed to the bill.

10. It is likewise true that a very impressive list of names is attached to a petition favoring this legislation. Here again I know of some who, having become better informed, have written letters retracting their consent. You know better than I how much value is to be attached in general to such petitions, for which it is sufficiently easy to secure signatures. Undoubtedly not a few of the general public have been misled by the grossly false, misleading and sentimental appeals of antivivisectionists. Upon this matter it is the voice of science and of medicine, which is likewise the voice of true philanthropy, which should be heard and which should control legislative action, and not that of those who, however worthy their impulses, however high their social position, however great their knowledge in other departments, do not possess that special knowledge which renders them competent to judge of the merits of this question. The voice of science and of medicine, so far as it receives authoritative utterance, is overwhelmingly opposed to any such legislation as that contemplated by this bill.

As to the necessity and great value of animal experimentation to scientific and practical medicine, both human and veterinary, and to biological science, there is practically no difference of opinion among well informed medical and scientific men. Thousands of lives of both human beings and animals have been saved and in increasing number will lives continue to be saved by knowledge which could have been gained only through experiments on animals.

In conclusion permit me to express my gratification, and I may safely add the gratitude of all enlightened physicians and scientists, that your powerful influence is being exerted in opposition to the enactment of Senate bill 1063. In this you have espoused the cause not only of science but also of humanity.

Malaria Infection.

Charlotte, N. C., March 7, 1898.

To the Editor:—In your remarks under the above heading, in the issue of March 5, 1898 (page 561), you make some statements which appear to deserve some qualification, at least from my information and experience on the subject. That there is a form of malaria (the disease) which resists the therapeutic action of quinin even when in proper dosage by the stomach, rectum and skin, is within the experience of a number of physicians throughout the South. This form of malaria, designated the estivo-autumnal, will not infrequently persist in spite of the exhibition of large and repeated doses of quinin, the patient dying literally saturated with the drug and thoroughly cinchonized. Dr. Osler, the highly gifted and capable authority quoted to support the points of the editorial, has given absolute testimony to the fact that quinin *will not* remove the crescentic forms from the blood and that the fever will persist in spite of its use. Writing to me in answer to a communication, he replies to the question as to whether in his experience there was a form of malarial fever that resisted quinin: "Yes, the estivo-autumnal resists in certain phases. The organism—crescents—do not disappear." I take this to mean that there is a form of malaria which will not yield to quinin no matter how employed. The action of quinin upon certain types of malaria is very positive and undisputed. There are, however, phases or stages of what was doubtless originally a purely malarial affection, yet the precise nature of the pathologic phenomena soon becomes obscure and we deal with agencies supplementary to those originally and still present.

Exactly what constitutes this addition to the crescents already present in the blood, we have no present adequate answer. We know enough to know that the pathologic condition is not amenable to the therapeusis of quinin, no matter how much or by what avenue it reaches the blood.

Respectfully, J. Wellington Byers, M.D.

Oxytuberculin.

Santa Clara, Cal., March 12, 1898.

To the Editor:—My attention has been drawn to a letter in the Journal about oxytuberculin by Dr. E. H. Smith of Santa Clara, Cal. It is not my custom to reply to such letters, but a few facts will be at least interesting.

There are seven (or more) physicians in this county who have used oxytuberculin. How many of the cases treated by these physicians have been observed by Dr. Smith I am not able to state, nor do I know whether or not Dr. Hirschfelder has diagnosed all the cases of tuberculosis treated by these men. The letter states, "It is a very noticeable fact that all of the cases seem to be diagnosed by one individual, viz., Dr. Hirschfelder."

For myself I shall reply, and will be glad to hear from the others. Dr. Hirschfelder never examined a case for me (nor the sputum) for at least three months after I had used treatment; nor has he ever diagnosed a single case for me. I have several times submitted the samples of sputum to him for satisfaction and for preservation of a slide by him. One case of mine to which Dr. Smith refers as "observed" by him, the letter states "That was a case of 'asthma,' and no positive evidence of tuberculosis at all. This case has been reported cured."

Now this case has never been reported "cured."

Dr. Smith has never examined this patient, and yet he states "These cases are not presented to an unbiased medical profession for diagnosis." What could be more biased than to say that a certain case was "asthma" and not "tuberculosis," without having made any examination. Let us see whether or not this was a case of "asthma;" and, notice, that before oxytuberculin or Dr. Hirschfelder were known to me at all, this case was diagnosed "consumption" early in 1896. Dr. P. M. Lusson of San Jose, examined the patient and gave his diagnosis as "pulmonary tuberculosis in both lungs." I was not acquainted with the patient at that time. On Aug. 6, 1896, this patient presented herself at my office for examination. My notes taken at the time are as follows: Temperature 101.5 degrees; pulse 104; cough very annoying; losing flesh; expectoration abundant; left lung affected to third rib; right lung to fourth rib; nocturnal paroxysms of asthma causing patient to smoke asthma powder from six to fifteen times a night; weight about 103 pounds; usual weight for five years 110 pounds; microscope shows abundant tubercle bacilli. Diagnosis: Pulmonary tuberculosis, complicated. Treatment: Outdoor life, generous diet, tonics, creosote carb., protonuclein, etc., with cough mixtures.

November 6, gradual decline; weight about 100 pounds; no improvement.

November 16, tubercular pleurisy, severe; tubercular foci throughout both lungs.

Dr. I. N. Frasse of San Jose, called in consultation. Diagnosis according to written statement: "a clear case of phthisis." (He examined the sputum also.)

The doctor told the husband of the patient that in his opinion she would not live much longer than one week. He did not recommend any drugs, but agreed to use oxytuberculin or anything, as the case was far gone. After three months treatment, the patient did her own housework. In six months weighed 122 pounds, or twelve more than for four years.

The asthma has returned only two or three times in 15 months and then only after a heavy meal, and the attack was completely stopped by one treatment of oxytuberculin, within fifteen minutes after administration. The patient feels well, sleeps ten hours daily uninterruptedly and does her own work. No medicines were used for six months during the treatment with oxytuberculin. Dr. Frasse has examined the patient twice since his first consultation at intervals of about three months, and writes me, "at my last examination some time ago I could still detect some bronchial breathing at the apex of the right lung, posteriorly, but otherwise the patient had made most excellent progress." Four other physicians examined this patient during the first four months of the treatment, each one unhesitatingly saying that it was a case of "tuberculosis."

Is it fair or "unbiased" to call this a case of "asthma?" Does "positive evidence" of tuberculosis only come from an examination by Dr. Smith and none other? Would you submit a case for an opinion to a man who will diagnose the case without an examination?

In every case that I have treated with oxytuberculin there is as much proof of tuberculosis and confirmatory evidence as in the above case, and I challenge proof that the tuberculosis did not exist in every case. Of four cases under my care in which oxytuberculin was used, two made marked improvement, one considerable improvement, one very slight improvement. With Koch's T. R., several cases have made some improvement. My own experience does not lead me to say that oxytuberculin will cure a single case of tuberculosis, nor do I pretend to champion the remedy. Facts are better than statements. Until we find a remedy that will cure every case, it is better to wait for time to reveal the worth of every treatment. Where there are no contra-indications, why not use combined means, medicine, diet, exercise, hygiene, and any available specific treatment? The idea is not to prove the worth of any one remedy, but to cure the patient. Invariably, however, I explain to the patient that no guarantee of cure can be given. Yours respectfully,

D. A. BEATTIE, M.D.

Advertising in the Secular Press.

TECUMSEH, MICH., March 10, 1898.

To the Editor:—In these days of push, of progress, of smokeless gunpowder, of climbing to the pinnacle of fame by every available means, is it not right, yea, is it not the only certain method by which a young and ambitious medical graduate can lift himself bodily into the aerie of success, by advertising his wares in the secular press where he locates, and informing his patrons through the press of his undoubted ability after the following manner?

Dr. Obediah Hayseed, assisted by Dr. Mossback and Dr. Falstaff of Rouge's Hollow, successfully removed a tumor from Mrs. George Gumbo. The patient is doing nicely. Is this not the proper method of becoming eminent with a single bound?

Respectully yours, J. F. JENKINS, M.D.

PUBLIC HEALTH.

A New Source of Contagion.—The *Méd. Moderne* relates the case of a child with scarlet fever. As a new dress was required, the mother had a number sent up from the stores and tried them on the child, returning all but the one she decided to buy.

The Favorable Effect of Hygienic Measures on the Eyesight is emphasized by a report recently published detailing the results of the examination of the eyes of school children practiced in Munich two or three times a year for the last sixteen years. The average of vision is constantly rising.

Free Sanitaria for Nervous Affections.—Munich is soon to have an institution to receive male cases of functional neurosis, at a nominal sum, one mark a day. A minister, Ringseisen, has placed a couple of villas at the disposition of the committee in charge of the project, and money has been subscribed to build another. As soon as sufficient funds have been collected to maintain them, they will be put in operation, excluding alcoholics and epileptics.—*Klin. Therap. Woch.*, January 30.

Health in Chicago.—The report for January gives the total deaths during the month as 1835, or 1.13 per 1000. The rate for the corresponding month in 1897 was 1.25. Of these 1835 deaths, 390 were of persons under one year old, and 217 between one and five years. The chief causes were: Pneumonia, 248; nervous diseases, 226; consumption, 202; heart diseases, 124; bronchitis, 92; diphtheria and membranous croup, 68; cancer, 67; acute intestinal diseases, 79; typhoid fever, 29.

Health in Michigan.—The report for February gives the diseases most prevalent during the month as rheumatism, influenza, neuralgia, bronchitis, tonsillitis, pneumonia, pleuritis, diarrhea and pulmonary consumption. Compared with the report for January, consumption was more prevalent, being reported at 117 places, while measles was reported at 85 places, scarlet fever at 68, diphtheria at 60, typhoid fever at 53, whooping cough at 27, and smallpox at one place. Compared with the average for February for twelve years, whooping cough, intermittent fever, remittent fever, consumption, scarlet fever, diarrhea and pneumonia were less prevalent.

Sex and Population.—The London *Post* in the turbulent wake of the statistician gives some space to the disparity of the sexes, but wrongly credits Egypt as being the only country of the world where the men exceed the women. The avowed number foots up as high as 160,000. Let us dip into the question somewhat. The alleged preponderance of men in the United States is held to be 1,513,510, and in Australia the comparison suffers still more. But by the last Italian census, certainly the most accurate of all, the excess of male over female inhabitants is in the proportion of 50.20 to 49.80. In Greece the percentage of male inhabitants is higher even than it is in Italy, and so it is, too, in Servia and Roumania. In all the South American countries, with the exception of Chile and Venezuela, men outnumber the women, and this is particularly the case in Brazil and in the Argentine Republic. In England's South African Colonies, in India, and in Canada, as well as in Egypt, the number of male inhabitants exceeds the number of female inhabitants. Egypt's claim to any particular prominence in this matter is based on a very slender foundation at best. By the census previous to the last one it was shown that the total number of male inhabitants was 3,402.000 and the number of female inhabitants was 3,416,000. In a population, therefore, of nearly 7,000,000 the excess of female inhabitants at that time was 14,000, and if since then the scale has been turned slightly and now shows a small preponderence of men, there is certainly nothing in it which particularly calls for any great demonstration of surprise. The only commentary after all seems to be that the masculine element is reasonably content with an unembarrassed struggle for existence.

State regulations of Tuberculosis.—Dr. J. M. Withrow, Health Officer of Cincinnati, in the Ohio Sanitary Bulletin for February, says:

"Fourteen States have bovine laws and regulations, and issued circulars for public instruction with reference to tuberculosis in man, i. e., California, Colorado, Connecticut, Iowa, Maine, Massachusetts, Michigan, New Jersey, New Hampshire, New York, Pennsylvania, Rhode Island, Virginia and Wisconsin. Two States have bovine laws, but do nothing toward stopping the spread of tuberculosis in man, i. e., Minnesota and South Dakota. Tennessee has bovine laws, but can not enforce them for lack of funds, and the Health Board has only issued circulars upon the prevention of tuberculosis in man and beast. The District of Columbia and Oklahoma have a law prohibiting the sale of tuberculous milk, but nothing concerning the disease in man and cattle. Delaware, Indiana, Kentucky, Louisiana, New Mexico, Ohio, Texas and West

Virginia issue circulars of instruction concerning tuberculosis in man, but no steps have been taken concerning bovine tuberculosis. The remaining sixteen States have apparently done nothing to prevent the spread of tuberculosis either in man or beast. In about one-third of the large cities of the United States nothing has been done toward securing the prevention of consumption. . . . In Ohio . . . there is no law to prevent the sale of tuberculous milk, and no means are taken to prevent the spread of tuberculosis among cattle, and so far as tuberculosis in the human being goes, there is no legislation statutory in character upon this subject. . . . The Ohio State Board has issued circulars of instruction on this subject, but their dissemination has not been general enough or frequent enough to create very much public feeling upon the subject. In the city of Cincinnati . . . a board of health regulation has been adopted placing the obligation of physicians to report cases of tuberculosis upon the same plane as cases of diphtheria, scarlet fever and other infectious diseases."

Typhoid Fever at Philadelphia.—There appears to be no doubt in the minds of experts that the Schuylkill River water-supply has been the cause of the high fever rate at that city. That river, near the intakes for Philadelphia, has been shown to be polluted from end to end, and this foul, sewage-laden water is served, unpurified, to the patient tax-payer. Last November an accident occurred by which sewage was pumped directly into a reservoir and thence into the city water mains to the consumer; and this accident seems to have been a principal cause of the present outbreak. It is also known that further up the river typhoid is on the increase, and this adds another factor to the cause of the epidemic. But to enumerate these causes is of no avail. The Schuylkill is polluted and every one has known the fact for years. Every one also knows that the practical remedy for the situation is either a thorough filtration or an entirely new plant. Since the beginning of the present outbreak, the first week of last December, 1134 new cases of enteric fever have been reported in the city of Philadelphia, and of this number 675 have occurred during the first four weeks of the new year, or an average of more than 168 new cases weekly up to the present time. As a striking comparison, we may state that during two weeks of the present month New York City, exclusive of Brooklyn, etc., with a population twice that of Philadelphia, reported a total of thirty-six new cases of typhoid, while Philadelphia for the corresponding period reported no less than 366 new cases. To further the comparison, two wards in the infected district of Philadelphia, having a combined total population of 100,000, in one week surpassed the total roll of enteric fever cases reported among the 2,000,000 inhabitants of New York City for a period of two weeks. To make the contrast still plainer, in one recent week in New York City only six new cases of typhoid were reported from the densely populated tenement districts below Fourteenth Street, where the nature of the surroundings and mode of life offer every advantage to the development of filth diseases. On the other hand, the section of Philadelphia in which typhoid is most prevalent is an area not of crowded tenements and of indifferent hygienic environment, but of separate small dwellings, occupied, as a rule, each by a single family, and pronounced by the corps of health inspectors to be of more than average healthfulness.—*Medical News*, January 29.

The American Public Health Association.—The *Public Health Journal* (January) has a personal item respecting the president-elect of the American Public Health Association, Dr. Charles A. Lindsley of New Haven, of which the following is a part: Among the numerous honorable positions heretofore held by Dr. Lindsley, he was a vice-president of the AMERICAN MEDICAL ASSOCIATION in 1871-72, with which society he united as long ago as 1855. He is one of the oldest living members of the association of which he has lately been chosen president, having joined in 1875. He has made many and important contributions to sanitary and medical literature, to which the annual and other reports emanating from his State board of health and medical society will testify. Of the latter body he was its centennial president in 1892. With the State board he has been connected fully twenty years, and has been its secretary since 1884. With the interests of medical education he has been identified since 1860, and has been for twenty years dean of the Yale University medical faculty. He is a descendant of Francis Lindsley, who came to America in 1666 and settled in New Jersey. He was born in Orange in 1826, and was graduated from Trinity College, Hartford, in 1849, receiving a master's degree in 1852. Then he began the study of medicine and after the close of a term in the College of Physicians and Surgeons, New York, received his degree of M.D. from Yale. Since then he has been a member of the Yale faculty and has lived in New Haven. From 1860 to 1883 Dr. Lindsley was professor of materia medica and therapeutics at Yale, and since 1883 he has been professor of the theory and practice of medicine at that university.

Decline of Typhus Fever in the Cities of Great Britain.—It may be said without exaggeration that five-sixths of the medical profession of this country have never seen a case of typhus fever. And yet the time is not so very remote, say in the sixties, when that fever was a dreaded visitant among the medical internes of institutions, like Bellevue Hospital, New York, that were brought into contact with immigrants from Great Britain having "ship fever," as it was then frequently styled. About the time that this fever began to drop out of the ken of the American profession, along with relapsing fever, the teachers in the medical schools began to recognize the terms "sanitation," "public hygiene," a "preventive medicine," and the like, and to treat briefly of those subjects. This was possibly not much earlier than 1870, and not much earlier, therefore, than the founding of the American Public Health Association. Regarding the decadence of typhus fever, Dr. Bailey of Bilston has prepared the following sketch, a portion of which we quote from the *Lancet*, as follows: "In 1837, typhus fever prevailed in many parts of England, and in 1838 no less than 1271 per million of the population died from it. In the years 1846-48 a frightful epidemic occurred in Ireland on the failure of the potato crop. It spread to England where, in 1848, 786 cases were admitted to the London Fever Hospital alone. In that hospital as many as 14,589 cases were treated during the period 1862-70. In Glasgow, too, the death rate per million for the five years 1855-59 was 1265, and for the five years 1860-64, 1576. These figures show the extremely fatal character of this most formidable disease. Since 1869 this fatality has markedly and continuously decreased, until now it has almost reached the vanishing point. In that year the deaths in England and Wales were 4281, in 1885 they were only 318, and the mean rate for the quinquennium 1891-95 had actually been reduced to 4 per million of persons living. . . . Surely if sanitarians could lay claim to no other achievement they would be entitled by this to an honorable place in the history of the Victorian era."

Caution to be Exercised by Boards of Health in Destroying Property.—The language of the Arkansas statute is that municipal corporations shall have power to cause "any nuisance to be abated." From this and the other provisions relative thereto, the supreme court of the State holds, in the case of Gaines vs. Waters, decided Jan. 8, and rehearing denied Feb. 19, 1898, that the city council is authorized to confer upon the board of health power to abate nuisances dangerous to the health of the inhabitants of the city. It takes the view that a board of health is an instrumentality of the city, and that the city has the right to make general rules to be carried out by the board of health as its agent. The board being but an agency of the city, its acts in reference to the abatement of a nuisance are, in effect, the acts of the city itself. The contention that a city council can not delegate to the board of health the power to determine judicially that a certain structure or other thing is or is not a nuisance, the supreme court goes on to say, has no bearing on the case, for the reason that the council itself has no such power, nor does the board of health in abating nuisances, exercise judicial powers within the usual meaning of such term. There is no requirement that parties interested shall be given notice and an opportunity to be heard, nor does the statute contemplate a judicial hearing before the city council or board of health in matters of this kind. On the other hand, there is no authority to destroy property not a nuisance, and the resolution of a board of health that a house, for example, is a nuisance, the court says, does not make it a nuisance unless it be one in fact, nor is such resolution a judicial determination of that question. This leads the supreme court to make the even more practical, general suggestion, that it follows, therefore, as a matter of common prudence, that in summary proceedings by a city council or board of health to abate a nuisance, when the imposing party has no opportunity to be heard, that great caution should be exercised that property may not be unnecessarily destroyed, and further, for the reason that if it should turn out that a house declared by either of these bodies to be a nuisance was not such in fact, and its removal unnecessary, those removing it might become liable for an action in damages.

Kentucky Local Boards of Health entitled to Compensation.—Section 2055 of the Kentucky Statutes, among other things, provides that, "The local board shall receive such compensation for such services as the county court in which the local board is established shall in their discretion, determine." From this, the court of appeals of Kentucky concludes that the legislature intended that the members of the local board of health should be fairly compensated for the services they are required by law to render. The discretion of the fiscal court with reference to the compensation to which such board is entitled, it further declares, in Stephens vs. Allen, Jan. 27, 1898, is not an arbitrary one, but is a sound judicial discretion, and one that can be controlled.

The Water-Supply Laboratory of Brooklyn. With infinite pains a biologic and chemic laboratory was established at Rockville Center, L. I., for the purposes of a scientific supervision of Brooklyn's supply of drinking water. Under the new régime of the Greater New York, this plant has been wiped out. It had been in operation over a year and was considered by the former health commissioner, Dr. Z. Taylor Emery, as being one of the most sanitary of his accomplishments in his four years' service. As the *Medical News* states, this plant connoted the opinion of those who have discovered that the proper location for an institution of this nature is upon the watershed itself and that the chemic and bacteriologic researches should be accompanied by frequent inspection of all suspected feeders and ponds. The investigations have been conducted by Dr. Hibbert Hill, formerly in the employ of the Louisville Water-Supply Commission, an expert in bacteriology, assisted by Dr. Ellms, chemist. Dr. Ezra H. Wilson, who recently resigned from the health department to give his sole attention to the work of the Hoagland Laboratory, was for a time in charge of the Rockville biologic work, but latterly was appointed to the honorary position of consulting bacteriologist. The names of these three officials are signed to an important report of 200 pages setting forth the organization and results of the laboratory. This report is replete with tabular and other technical matters, and will be especially valuable to water-biologists and engineers; it may without exaggeration be characterized as a "State paper" of permanent value. As the new charter of New York City places the sanitary supervision of water-supplies in the board of health, it is to be hoped that this important function will not be slighted. It is beyond doubt a mistaken policy to neglect this line of sanitary work until the water becomes suspected or polluted, and popular panic and outcry, to say nothing of decimating epidemics, make its resumption necessary.

NECROLOGY.

John Dugan Skeer, M.D., Chicago, March 7, aged 73 years. Dr. Skeer was graduated from Cincinnati Medical College and the Nashville College of Medicine. Throughout the Civil War he had charge of Hospital No. 9, at Nashville.

Samuel H. Dismond, M.D., Richmond, Va., March 1, aged 44 years. He was graduated from the Richmond Institute in 1879 and as Doctor of Pharmacy and Doctor of Medicine from Harvard University in 1883.

W. O. Rodgers, M.D., Omaha, Neb., March 10, of rheumatism of the brain. Dr. Rodgers was chief medical director of the Woodmen of the World, a member of the American Medical Association, and was graduated from the Medical Department of the University of Buffalo in 1883.

Walter O. Richards, M.D., March 2, aged 78 years. Dr. Richards had practiced his profession in Waterloo and Blackhawk County for forty-three years. He was a member of the County Medical Association, also District, State and National Associations.

S. D. Smith, M.D., Piqua, Ohio, February 6, age 69 years. He was graduated from the Medical Department of the University of Pennsylvania in 1863; was appointed assistant surgeon in the U. S. Navy and was assigned to duty on the *Brandywine*, which service he left by resignation. He was a member of the American Medical Association. At a meeting of the Medical Societies of Miami and Shelby Counties February 9, the following memorial report was adopted:

Resolved, By our Joint Society, that in the death of our associate and fellow member, Dr. S. D. Smith, while bowing in humble submission to the will of our Heavenly Father, that Great Physician before whom we must all appear and whose immunizing power alone can divest mortality of its sting, we have sustained a personal loss and would drop a tear upon the grave of our departed brother and place on record our appreciation of those high and noble qualities of heart and head which make up the life of one so well known as an accomplished physician, whose irreproachable life exemplified the value of a good citizen, who in his social relations was refined, genial and brilliant. One who was a sincere and faithful friend, removed from us at a time of life when many more years of active usefulness were to be hoped for; all who have been associated with him will ever hold in cherished remembrance his varied attainments and those higher moral qualities which rendered him not less endeared than admired.

Resolved, That we ever cherish the memory of our late associate and tender to his bereaved family our warmest sympathy in their great loss.

James E. Shellenberger, M.D.
J. F. Gabriel, M.D.
D. R. Silver, M.D. } Committee.
F. M. Wright, M.D.
O. Tydings, M.D.

John H. Mease, M.D., licentiate of the Oswego County Medical Society, 1875, died in Oswego, N. Y., March 11, after a practice there of twenty-four years. His wealth, according to the daily prints, was made by ventures in the early days of California, and by sales of horses to the government during the war.

Henry David Kahler, M.D., Western Reserve Medical College, 1895, a native of Bolivar, Ohio, died in Shelby, Ohio, where he had recently located, February 20, aged 32 years.

Charles H. Calman, M.D., died in New York City, March 9, aged 21 years.

George Bowers, M.D., Oshkosh, Wis., March 8, aged 29 years.——W. H. Bunker, M.D., Hartwell, Ohio, March 6.——

Eugene Clark, M.D., New Orleans, March 7.——Charles B. Jennings, M.D., Dubuque, Iowa, March 11, aged 64 years.——Sylvester Laning, M.D., Kingman, Kans., March 4, about 50 years old.——Anthony Weiskopf, M.D., Kenosha, Wis., February 26.——F. B. Wood, M.D., Garrett, Ind., March 1.——J. H. Hauptmann, M.D., Erie, Pa., March 6, aged 34 years.

Deaths Abroad.—Sir Richard Quain, Bart., physician extraordinary to her majesty, president of the general medical council and editor of "The Dictionary of Medicine." He was born Oct. 30, 1816, was a fellow of several learned societies and the author of numerous medical and scientific works.

ASSOCIATION NEWS.

Fifty-first Annual Announcement.

Office of the Permanent Secretary,
1400 Pine Street, Philadelphia.

The Forty-ninth Annual Session will be held in Denver, Colo., on Tuesday, Wednesday, Thursday and Friday, June 7, 8, 9 and 10, commencing on Tuesday, at 10 a.m.

"The delegates shall receive their appointment from permanently organized State medical societies, and such county and district medical societies *as are recognized by representation in their respective State societies*, and from the medical departments of the Army and Navy and the Marine-Hospital Service of the United States.

"Each State, county and district medical society entitled to representation shall have the privilege of sending to the Association one delegate for every ten of its regular resident members, and one for every additional fraction of more than half that number; *Provided*, however, that the number of delegates for any particular State, Territory, county, city or town shall not exceed the ratio of one in ten of the resident physicians who may have signed the Code of Ethics of the Association."

Members by Application.—Members by application shall consist of such members of the State, county and district medical societies entitled to representation in this Association as shall make application in writing to the Treasurer, and accompany said application with a certificate of good standing, signed by the president and secretary of the society of which they are members, and the amount of the annual subscription fee, $5. They shall have their names upon the roll, and have all the rights and privileges accorded to *permanent members*, and shall retain their membership upon the same terms.

The following resolution was adopted at the Session of 1888:

That in future each delegate or permanent member shall, when he registers, also record the name of the Section, if any that he will attend, and in which he will cast his vote for Section officers.

Secretaries of medical societies, *as above designated*, are earnestly requested to forward, *at once*, lists of their delegates.

Addresses.—Presidential Address, Geo. M. Sternberg, Washington, D. C. Address in Surgery, J. B. Murphy, Chicago. Address in Medicine, J. H. Musser, Philadelphia. Address in State Medicine.————

Committee of Arrangements.—J. W. Graham, Denver, Colo.

AMENDMENTS TO THE CONSTITUTION AND BY-LAWS.

Offered by W. L. Wells:

Art. IV.—Officers. Amend to read "Each officer shall hold his appointment for one year, and until another is elected to succeed him."

Offered by H. B. Ellis:

Art. IX.—Conditions for further representation. "Any State or local medical society, or other organized institution whose rules, regulations and code of ethics agree in principle with those of this Association may be entitled to representation on the advice or agreement of the Judicial Council."

"That the name of the Section on Dental and Oral Surgery be changed to that of Section on Stomatology."

Offered by L. D. Bulkley:

"That all new business shall be introduced not later than the third day of the session."

☞ At the last session it was agreed that all committees having reports of public interest, and particularly matters pertaining to legislation, be instructed to make their reports on the second day at the General Session.

EXTRACTS FROM BY-LAWS.

"The Chairman of each Section shall prepare an address on the recent advancements in the branches belonging to his Section, including suggestions in regard to improvements in methods of work, and present the same to the Section over which he presides, on the first day of the annual meeting. The reading of such address not to occupy more than forty minutes."—*By-Laws.*

"It shall be the duty of every member of the Association who proposes to present a paper or report to any one of the Sections to forward either the paper or a title indicative of its contents and length (not to exceed twenty minutes in reading) to the Secretary of said Section, at least one month before the annual meeting at which the paper or report is to be read."—*By-Laws.*

4.—*The Publication of Papers and Reports.* "Every paper received by this Association and ordered to be published, and all plates or other means of illustration, shall be considered the exclusive property of the Association, and shall be published and sold for the exclusive benefit of the Association."—*By-Laws.* Wm. B. Atkinson, Permanent Secretary.

Section on Surgery and Anatomy.—All titles for papers in the Section on Surgery and Anatomy must be in my hands by May 1. Inasmuch as my program must be in the hands of the Secretary of the Association by May 7, I must have a week for its preparation. Clayton Parkhill, Sec'y, Denver, Colo.

Section on Ophthalmology.—The undersigned would be glad to have the titles of papers for the Ophthalmic Section sent to one of them as soon as possible, in order that they may appear in the preliminary program. The subjects specially set for discussion at the meeting are: The Uses of Electricity in Ophthalmology; and The Treatment of Affections of the Lachrymal Apparatus. Papers on these or any other subjects of special interest to the Section will be welcome. A number of interesting contributions have already been promised and everything points to a most successful meeting. R. L. Randolph, M.D., Secretary, 816 Park Avenue, Baltimore, Md., H. Gifford, M.D., Chairman, 1404 Farman Street, Omaha, Neb.

Notice to all Interested in Neurological Progress.—All who classify themselves under the above caption will confer a favor upon the undersigned by sending a brief memorandum, with accurate reference data attached, of actual progress in neurology and neuriatry for the past year, or any facts which they may consider so classified, to be epitomized or referred to in his forthcoming Presidential Address to the Section on Neurology and Medical Jurisprudence of the American Medical Association at its meeting in Denver in June *proximo.* Communications are also solicited to be presented to the Section either in person or by letter. C. H. Hughes, M.D., Chairman of Section on Neurology and Medical Jurisprudence, 3857 Olive Street, St. Louis, Mo.

Section on Neurology and Medical Jurisprudence—Preliminary Program.—The afternoon of the second day will be devoted to a joint session with the Section on Obstetrics and Diseases of Women for a discussion of The Relation of Pelvic Disease to Nervous and Mental Affections. This will be opened by six short papers, three from each Section. Those contributed by the Neurological Section will be as follows:

Is Pelvic Disease a Cause of Nervous and Mental Affections? by Frederick Peterson, New York.

Are Nervous and Mental Diseases Cured by Pelvic Operations? by F. X. Dercum, Philadelphia.

Nervous and Mental Diseases Following Pelvic Operations, by Harold N. Moyer, Chicago.

GENERAL PROGRAM.

Address of the Chairman, by Charles H. Hughes, St. Louis.

Double Consciousness and the Dual Action of the Brain, by David Inglis, Detroit.

Those Cerebral Neuroses Miscalled Insanities, by Clarke Gapen, Madison, Wis.

Relation of Neurasthenia to the Organic Neuroses and the Acute Psychoses, by James G. Kiernan, Chicago.

The Relation of Neurasthenia to Insanity, by John Punton, Kansas City.

Insanity; Borderland Symptoms; How Best Met, by W. S. Watson, Fishkill-on-Hudson, N. Y.

Neurasthenia; Its Co-relation to the Physiology and Pathology of the Reproductive Organs, by F. Savary Pearce and Harry D. Beyea, Philadelphia.

The Influence of Sexual Disorders upon the Nervous System; Its Nature and Extent, by J. R. Buist, Nashville, Tenn.

Reflex Neuroses in Women, by I. N. Upshur, Richmond, Va.

Uterine Hyperesthesia, by Ephraim Cutter, New York.

Functional Nervous Diseases That Are Associated with Pregnancy, by Samuel Goodman, Boston.

Functional Nervous Disturbances in Pulmonary Invalids, by Sherman G. Bonney, Denver.

Vasomotor Storms, by Frank R. Fry, St. Louis.

Neuralgia and Nerve Cries, by Charles H. Lodor, Chicago.

The Nervous Element in Hyperpyrexia, by C. C. Hersman, Pittsburg.

Neural Dynamics, by W. J. Herdman, Ann Arbor, Mich.

An Examination of Some So-called Faith Curists and Mental Scientists in the Light of Functional Pathology of the Brain, by Louis F. Bishop, New York.

The Stress of Modern Civilization as a Factor in the Causation of Insanity, by Frederic S. Thomas, Council Bluffs, Iowa.

The Question of Inheritance in Degeneracy of the Nervous System, by Ira Van Gieson, New York.

A Form of Degeneracy, by Eugene G. Carpenter, Cleveland, Ohio.

Melancholia, by Frank P. Norbury, Jacksonville, Ill.

Some Experiments in Uric Acid Excretion on a Milk Diet and in Melancholia, by F. Savary Pearce, Philadelphia.

The Result of Blood Examinations in Some Forms of Insanity, in Connection with the Administration of Thyroid Extract, by Samuel Bell, Newberry, Mich.

The Blood Changes in Nervous Diseases, by L. Bremer, St. Louis, Mo.

Toxins of Erysipelas in the Treatment of Insanity, by Oscar A. King, Chicago.

Travel as a Therapeutic Measure in Psychoses, by Richard Dewey, Chicago.

Moral Insanity in Inebriety, by T. D. Crothers, Hartford.

Massage Combined with Psycho therapeutics in the Treatment of Nervous and Mental Affections, by Geo. V. I. Brown, Duluth, Minn.

Electricity an Important Factor in Therapeutics, by W. S. Watson, Fishkill-on-Hudson, N. Y.

Two Cases of Hydrophobia with a Suggestion as to Treatment, by Hugh T. Patrick, Chicago.

Paralysis Agitans, by Sanger Brown, Chicago.

Exophthalmic Goiter, by J. B. Marvin, Louisville.

Hysteria in Children, by J. G. Biller, Cherokee, Iowa.

Aboulia in its Relation to Hysteria, by L. Harrison Mettler, Chicago.

The Opium Treatment of Epilepsy, by Frank C. Hoyt, Clarinda, Iowa.

Modern Treatment in Epilepsy, by Curran Pope, Louisville, Ky.

Symptoms Indicating Organic Nervous Disease, by Howell P. Pershing, Denver.

Paretic Dementia and Tabes, Their Genuine and Counterfeit Varieties, by Arthur E. Mink, St. Louis.

Some Considerations of the Symptomatology in the Diagnosis of Tabes, by J. M. Aikin, Omaha.

Report of a Case of Intra-dural Tumor of the Spine; Removal, Complete Recovery; Exhibition of the Patient; by J. T. Eskridge, Denver.

The Finer Structure of the Nerve-cell in Health and in Disease, by Lewellys F. Barker, Baltimore.

The Neuroglia in Health and Disease; by Maximilian Herzog, Chicago.

The Reclassification of Some Organic Nervous Diseases, by Chas. K. Mills, Philadelphia.

Cerebral Meningitis; Some Suggestions on Diagnosis and Treatment, by D. R. Brower, Chicago.

Apoplexies Without Paralysis; by William N. Bullard, Boston.

Syphilis of the Nervous System as the General Practitioner Sees It, by C. Travis Drennen, Hot Springs, Ark.

Aphasia; With Report of an Interesting Case, by F. E. Coulter, Omaha.

The Orthopedic Treatment of Infantile Spinal Paralysis, by John Ridlon, Chicago.

Lumbo-Abdominal Permanent Drainage in Hydrocephalus, by Alex. Hugh Ferguson, Chicago.

Adiposis Dolorosa, by Augustus A. Eshner, Philadelphia.

The Status of the Medical Expert in the Different States, by Edward B. Angell, Rochester, N. Y.

How Shall Consultations be Conducted by Those Who are to Testify as Experts? by John L. Hildreth, Cambridge, Mass.

The Medicolegal Value of the Roentgen Rays, by Geo. H. Stover, Denver.

The Medicolegal Aspect of Senile Dementia, by W. B. Fletcher, Indianapolis, Ind.

Characteristics of Headaches According to their Origin, by Henry Gradle, Chicago.

Ocular Headaches, by William H. Wilder, Chicago.

Headaches Caused by Errors of Refraction by J. Elliott Colburn, Chicago.

Some Causes of Wry-neck, by C. M. Hobby, Iowa City, Iowa.

A Case of Acromegaly, by Henry W. Coe, Portland, Ore.

There will also be a symposium on brain tumor, the details of which have not yet been completed.

Hugh T. Patrick, M.D., Sec'y.

Section on Diseases of Children—Preliminary Program.—Address of Chairman, by J. P. Crozer Griffith, Philadelphia, Pa.

The Influence of Dystocia in the Causation of Infantile Diseases, by Joseph Eve Allen, Augusta, Ga.

Thyroid Treatment in Early Myxedema and Cretinism in Young Children, by Frederic Bierhoff, New York City.

Blood Examinations in Pediatric Practice, by S. E. Woody, Louisville, Ky.

Of the Value of Eye Symptom in Meningitis, by A. Edward Davis, New York City.

Some Additional Researches on the Poisons Found in Milk and Milk Products, by Victor C. Vaughan, Ann Arbor, Mich.

Tubercular Arthritis in Children, by John Ridlon, Chicago, Ill.

Some Skin Eruptions which are Confounded with Infantile Syphilis, by Charles H. Allen, New York City.

Preventive Treatment of Tuberculosis in Children with Hereditary Predisposition, by John A. Robison, Chicago, Ill.

Fracture of the Clavicle in Children, with Especial Reference to Treatment by a Modification of Sayre's Method, in over 200 Cases, by A. Ernest Gallant, New York City.

Discussion of above by Charles Power, Denver, Colo.

Whooping Cough, R. B. Gilbert, Louisville, Ky.

Eczema in Four Branches of a Family, by Ella M. Patton, Quincy, Ill.

Report of Some Odd Results in the Treatment of Diphtheria with Antitoxin, by Henry Anthony Strecker, Philadelphia, Pa.

Influenza in Children, by James J. Concannon, New York City.

The Treatment of Congenital Infantile Syphilis, by Charles S. Shaw, Pittsburg, Pa.

Mechanical Management of Difficult Defecation in Infants, by Thomas Charles Martin, Cleveland, Ohio.

Subnormal Temperature in Infectious Diseases, by Henry H. Freund, Philadelphia, Pa.

The Influence of the Climate of Colorado on Diseases of Children, by C. F. Gardiner, Colorado Springs, Colo.

Tetany in a Child 18 Months Old, by Edward H. Small, Pittsburg, Pa.

Tetany in Infancy, by J. Lovette Morse, Boston, Mass.

Pneumonia—Laborde Treatment of Artificial Respiration, by A. E. Roussel, Philadelphia, Pa.

Clinical Studies of Multiple Neuritis in Young Children, by Annie S. Daniel, New York City.

The Treatment of Tuberculosis in Children in New York City; Remarks Based on Ten Years' Experience, by Louis Fischer, New York City.

The Treatment of Congenital Talipes, by Harriet E. Garrison, Dixon, Ill.

The Debility of Adolescence, by Louis Faugeres Bishop, New York City.

Discussion of Intubation and Diphtheria, by Solomon Solis Cohen, Philadelphia, Pa.

The Diagnostic Value of Tuberculin, by Dillon Brown, New York City.

Some New Facts Concerning Scarlet Fever, by Joseph William Stickler, Orange, N. J.

Tuberculosis of the Iris, by A. C. Thompson and Samuel J. Cittelson, Philadelphia, Pa.

Formative Nutrition, by H. W. Scalfe, Chicago, Ill.

Tubercular Peritonitis, by F. F. Lawrence, Columbus, Ohio.

Cyclic Vomiting in Children, by Charles Godwin Jennings, Detroit, Mich.

Auto-Infection vs. Typhoid Fever as Seen in Young Children, by W. C. Hollopeter, Philadelphia, Pa.

Discussion in Diphtheria and Tubercular Diseases, by Edwin Klebs, Chicago, Ill.

Data Derived from One Hundred Cases of Laryngeal Diphtheria, Including Forty-five Intubations, by Rosa Engelmann, Chicago, Ill.

Management of Infectious Diseases in Children, by I. N. Love, St. Louis, Mo.

Is the Use of the Term "Typhoid Pneumonia" Justifiable? A Case in Point, by Henry E. Tuley, Louisville, Ky.

Neurotic Purpura, by Francis A. Thompson, Milwaukee, Wis.

Mortality in Children Due to Neglect, for Which the Physician is Responsible, by W. A. Dixon, Ripley, Ohio.

Dentition, by Joseph Clements, Kansas City, Mo.

Conservations in Diphtheria, by H. D. Jerowitz, Kansas City, Mo.

Demonstration in the Method of Auscultation and Percussion for Heart and Lungs, by Herbert B. Whitney, Denver, Colo.

Discussion of Dr. Whitney's Method, by J. N. Hall, Denver, Colo.; John H. Musser, Philadelphia, Pa.; James C. Wilson, Philadelphia, Pa.; J. P. Crozer Griffith, Philadelphia, Pa.

What Influence do Stimulants and Narcotics Exert on the Development of the Child, by E. Stuver, Rawlins, Wyo.

Milk Food in Infants, by Edwin Rosenthal, Philadelphia, Pa.

Gastro Intestinal Chloroform Diarrhea, by Edward L. David, Louisville, Ky.

The Diagnosis and Treatment of Inherited Syphilis, by E. C. Davis, Atlanta, Ga.

Discussion on Intubation and Diphtheria, by Robert Levy, Denver, Colo.

Serum Treatment of Diphtheria, as viewed by the General Practitioner, during the last year, by Alexander McAlister, Camden, N. J.

SOCIETY NEWS.

Florida Medical Association.—The annual meeting of the Florida Medical Association will be held at Jacksonville, Fla., April 26, 1898. R. R. Burroughs, M.D., President; J. D. Fernandez, M.D., Secretary.

The Austrian Congress of Otology discussed the following subjects at the Vienna meeting in February: "Comparative Anatomy of the Labyrinth," "Pigment in the Labyrinth," "Persistent Perforations of the Tympanum," "Traumatic Neuroses," "Cholesteatoma of the Temporal Bone," "Cerebral Deafness," "Anatomy of Acute Tympanitis," "An Automatic Rheostat." Politzer, Gruber and Baginsky were among the speakers.

Congresses Announced.—The fourth International Congress of Physiology will meet at Cambridge, England, August 28 to September 1. The German Congress of Internal Medicine meets at Wiesbaden April 13. Von Ziemssen speaks on medicolegal instruction, Müller and Brieger on intestinal auto-intoxication and antisepsis, and Leo on diabetes mellitus; others on diseases of the cardiac musculature, blood plaques and experimental gastric ectasia. The German Congress of Surgery at Berlin April 13; for particulars address Professor Gurlt, W. Keithstr. 6, Berlin. The French Congress of Gynecology, Pediatry, etc., at Marseilles October 8; president, Professor Pinard. The French Congress of Alienists and Neurologists at Angers August 1. The subjects announced for discussion are: "Post-operative Psychic Troubles," "Arteritis in the Pathology of the Nervous System," and "Transient Delirium from a Medico legal Point of View." The French Congress of Medicine at Nancy, April 12. Subjects of addresses: "Clinic Forms of Pulmonary Tuberculosis," "Mixed Infections and the Therapeutic Application of Organs with Internal Secretions." The Norwegian Congress of Internal Medicine is announced for August 11 to 13 at Christiana. General secretary, H. Koester, Goeteborg.

BOOK NOTICES.

The Elements of Clinical Diagnosis. By PROF. DR. G. KLEMPERER, Professor of Medicine at University of Berlin. First American from the last (seventh) German edition. With Sixty-one Illustrations. Authorized Translation by Nathan E. Brell, A.M., M.D., and Samuel M. Buckner, A.M., M.D. New York: The Macmillan Company; Chicago: A. C. McClurg & Co. 1898.

As the translators remark, the fact that a work has gone through seven editions in as many years in Germany, is sufficient evidence of its merits, without further comment. They seem to have done their part in an unexceptionable manner. There are no traces in the translation of the involved and difficult language of the original. The book will be, with its convenient form and inexpensive cost, a very acceptable addition to the literature of its subject in our language. There are few works of its compass that are likely to be more serviceable.

Outlines of Rural Hygiene. For Physicians, Students and Sanitarians. By HARVEY B. BASHORE, M.D., Inspector for the State Board of Health of Pennsylvania. With an Appendix on the Normal Distribution of Chlorine, by PROF. HERBERT E. SMITH of Yale University. Illustrated with Twenty Engravings, 5½x8 inches. Pp. vi–84. Extra cloth, 75 cents net. The F. A. Davis Co., Publishers, 1914-16 Cherry Street, Philadelphia; 117 W. Forty-second Street, New York City; 9 Lakeside Building, 218-220 S. Clark Street, Chicago, Ill.

This little work is a very useful one and one very much needed. Indeed, *the* neglected point of sanitation today is the country. In cities the work is attended to by able and well equipped health departments, but rural hygiene is supposed to take care of itself. We bespeak for these "Outlines" of Dr. Bashore a wide circulation and careful attention.

Sexual Neurasthenia (NERVOUS EXHAUSTION), ITS HYGIENE, CAUSES, SYMPTOMS AND TREATMENT, with a Chapter on Diet for the Nervous by GEORGE M. BEARD, A.M., M.D. Edited with Notes and Additions by A. D. ROCKWELL, A.M., M.D. Fifth Edition (with Formulas). Pp. 308. New York: E. B. Treat & Company. 1898. Price $2.

The editor, Dr. Rockwell, says truly that "the fact that each successive edition of this work has been exhausted more quickly than its predecessor, sufficiently indicates its popularity and right to live."

In this edition is for the first time described what the author terms the "depolarizing" method in the treatment of neurasthenic cases. By this method the force of the positive pole is changed, by the use of a hollow-handled or cup-shaped electrode which, when in use, is filled with some electrolytic fluid, as a weak salt solution or weak solution of soda bicarbonate. This method prevents the pain and undue irritation sometimes felt at the point of contact with one of the ordinary electrodes, no matter how widely separated.

MISCELLANY.

Personal.—Professor William L. Nichol, so long identified with the schools of Nashville, Tenn., as a teacher of medicine, will in future lecture and teach exclusively in the Medical Department of the University of the South, at Sewanee, Tenn.

Broth for Cultivating Microbes.—Miquel recommends the following formula for a cultivation broth in bacteriologic researches: Chapoteau's pepton, 40 parts; gelatin, 4 parts; common salt, 10 parts; wood ashes, 1 part; and 2000 parts of water; the broth is made in the usual way.—*National Druggist*, March.

Retirement of Professor Esmarch.—Professor Esmarch of Kiel, one of the veterans of surgery, intends to retire from his professorship very shortly. Esmarch is 75 years old, and has held his chair at Kiel for more than forty years.—*British Medical Journal*, February 12.

An Editor Receives Professorial Honors.—Dr. J. W. McLaughlin of Austin, Texas, has been made professor of practice of medicine in the medical department of the University of Texas at Galveston. In accepting this honor, he has had to sever his connection with the *Texas Medical News* as its senior editor. This is a serious loss to our esteemed contemporary. We note, however, that Drs. A. N. Denton and M. M. Smith have been added to its editorial staff, with whose assistance, we feel sure, Dr. Bennett will keep up the standard of the *News.—New Orleans Medical and Surgical Journal.*

Paternalism Run Mad.—Representative Parker of Cleveland recently introduced a bill in the Ohio legislature providing for the appointment by the probate court of each county of a board of marriages composed of physicians. To this board, consisting of three members, persons who wish to marry must make application. The board will refuse to grant a license in case either party to the proposed contract has dipsomania, kleptomania, insanity, true or hereditary or resulting from vice; certain blood diseases or tuberculosis. It will charge $2.50 for each license and out of the fund so made each member will be paid a salary of $1000. There is provided a method of appeal to the State Board of Health in case of any refusal to grant the license.

Immunity to the Sting of Bees.—Dr. Langer of Bohemia, stated at the recent Congress of German Naturalists and Physicians, that he found the majority of bee-keepers in his district (Ruschowan) acquire a complete immunity to the stings of those insects, while some seem to have enjoyed that immunity from the first, possibly by inheritance. Of 153 nine had always been insusceptible, 118 had acquired the immunity, twenty-six had not. In some cases it was so complete that when intoxicated men had been stung in from fifty to one hundred places with less suffering than is felt by most persons from flea bites. He found the poison to be an animal alkaloid, and not, as is commonly believed, a formic acid. The best treatment is a subcutaneous injection of a 2 to 5 per cent. solution of potassium permanganate, as this salt in the proportion of 1 to 20 destroys this poison.—*The Practitioner,* February.

The So-called Roentgen Lady.—Latest among the marvels of French origin is *La Femme Roentgen,* a woman who is described as being able to read with ease through opaque bodies. Such, at least, is the story. We are told that Dr. Ferroul of Narbonne has found and has introduced this phenomenal lady to his colleague at the Medical Faculty at Montpellier. "All this is quite impossible," exclaimed Dr. Grasset when he was informed of the new wonder. "Well, you will see," was the reply. Then the demonstration was made. The woman succeded in reading, at a distance, a letter, the envelop of which had been covered with seals and also posted as an additional precaution, and so Dr. Grasset was converted. Some skepticism on the subject is still permissible, nevertheless; yet what a vista of queer possibilities does not this open out, even if *La Femme Roentgen* possesses only a moderate share of the extraordinary qualities thus attributed to her!—*The Parisian.*

Sugar in Mullein Flowers.—Dr. Schneegans, while making periodic examinations of the urine of a diabetic patient, who had been put on a strict diet without carbohydrates, found for a few weeks no sugar, but suddenly a considerable amount was again noticed and continued with regularity, although the diet had not been changed. Inquiries brought to light that the patient regularly drank considerable quantities of strong mullein tea, which had been recommended him as a remedy for Bight's disease. This led the author to repeat the experiments of Rebling, who had found 11 per cent. of sugar in mullein flowers, which would fully account for the sugar in the urine. Schneegans then found in various samples from 9.2 to 11.7 per cent. of invert sugar, and small varying quantities of cane sugar, corroborating the results of Rebling. Traces of an alkaloid were obtained from the seeds.—*Jour. de Ph.* in *Ap. Ztg.*

Quantitative Determination of Sugar in Urine.—According to Foerster (*Pharmaceutische Zeitung*) a quantitative determination of the sugar in urine may be made by means of Fehling's solution without the use of an indicator, in the following manner: The solution must be so prepared that 10 c.c. exactly represents 10 c.c. of a 5 per cent. solution of glucose. The limit of reaction when sugar solution in an Erlenmeyer alembic still plainly shows up blue, but when poured into a white 20 gm. glass it is completely colorless. To this end the Fehling solution must be made somewhat stronger than usual, and instead of carrying 34.64 gm. of copper sulphate should contain 35 gm. to the liter. For the determination pour 10 c.c. of the urine into a graduate glass, add 10 c.c. of the glucose solution thereto and fill up with distilled water to the 100 c.c. mark. With this mixture the liter is taken exactly as in pouring in the solution. The amount of the diluted urine used must be divided by 50, and from the quotient subtract 5 gm. The remainder is the percentage of sugar in the urine. The addition of the grape sugar makes it possible to titrate freely without the liquid ceasing to boil. The precipitate settles quickly, and the color shown by the mixture enables the expert to determine the limit of the reaction very closely.—*National Druggist,* March.

Must Assert Privilege in Time.—Referring to the provision of the California code that a licensed physician or surgeon can not, without the consent of his patient, be examined in any civil action as to any information acquired in attending the patient which was necessary to enable him to prescribe or act for the patient, the supreme court of that State says that the privilege is personal to the patient, and is waived when he calls the physician himself as a witness, or when he permits him to give his testimony without making any objection thereto. If the patient once consents to his testifying, he can not, after the testimony has been given, revoke the consent, and ask to have it excluded. Such consent may be either implied or express, further holds the court, in Lissak vs. Crocker Estate Company, where it maintains that there was an implied consent when the plaintiff permitted the witness to be examined in full by the defendant without any objection.

The Death-dealing Properties of Modern Ammunition.—The deadly effects of firearms is being steadily increased by the constant improvements which are being made. The *Scientific American* says that the deadly effect upon game of small, metal-covered expanding bullets, with high-velocity smokeless powder, has been recently satisfactorily demonstrated. Modern weapons possess several advantages over the old large calibers in flatness of trajectory, absence of smoke, long range, increased penetration, high velocity, less recoil and light-weight ammunition. The expanding bullet produces invariably an area of laceration greater than ever effected by any projectile before used. Without calculating the effect of the nervous shock, extensive splintering of bone and laceration of tissue are produced. The secret of the deadly effect of these small projectiles lies in their expanding qualities and extraordinary high velocity resulting from the use of smokeless powder, which is only possible when confined in small calibers. These facts are of interest not only to the members of the profession who are notorious Nimrods, when in search of large game, but are of immense practical value to the army and navy surgeon.

Some Examples of Incompatability.—The fact that many alkaloids and similar substances frequently give physiologic results different from those expected, suggested to the *Ztsch. f. Krankenpfl.* a discussion of these conditions, including a consideration of those medicinal substances, that suffer rapid decomposition and molecular rearrangement and those subject to deterioration during the process of preparation. As examples are mentioned the admixture of silver salts and organic matters; of salicylates with vegetable or mineral acids; sterilization of morphin and cocain solutions. Ointments are frequently entirely inactive, when containing metallic salts in addition to a salt of morphin or cocain, as the alkaloids are always rendered insoluble by a slight excess of metallic salts. Simultaneous external and internal use of certain medicaments may also exert a disturbing influence on their action. If, for example, an oculist prescribes an ointment containing mercury and the patient takes potassium iodid internally, there will be a formation of mercuric iodid in the eyes, which considerably increases their inflammation. Quinin is not infrequently prescribed with substances containing tannin, an insoluble tannate of quinin being the result. Quinin is also slowly precipitated by potassium bromid. In the cases of iodin and bromin the reactions with quinin are not always simple, but at times these bodies enter directly into the molecule and change not only the structure, but also the physiologic properties and are liable to change it even into toxic bodies. During the sterilization of morphin solutions there is a liability, especially when the temperature is too high, of forming apomorphin, an alkaloid of totally different therapeutic action. A similar change may take place under like condition in the sterilization of cocain solutions.—*Ph. Post*, in *Pharmaceutical Era*, March 3.

Supreme Court of United States on Suicide of Sane Insured Person.—A most important decision, bearing on the legal effect on life insurance of a policy holder committing suicide while sane, was rendered by the supreme court of the United States, Jan. 17, 1898, in the case of Ritter vs. the Mutual Life Insurance Company. Here it approves an instruction of the jury that if the insured understood what he was doing, and the consequences of his acts to himself and to others (that is, if he understood, as a man of sound mind would, the consequences to follow from his contemplated suicide, to himself, his character, his family and others, and was able to comprehend the wrongfulness of what he was about to do, as a sane man would), then he was to be regarded as sane; otherwise, not. And if experience justifies the view that an application for a policy would be instantly rejected if expressly providing that the company would pay the sum named if the insured committed self-destruction, being at the time of sound mind, the supreme court insists, it would follow that a policy stipulating generally for the payment of the sum named in it upon the death of the insured, should not be interpreted as intended to cover the event of death caused directly and intentionally by self-destruction while the insured was in sound mind, but only death occurring in the ordinary course of his life. But the court goes still farther and holds that if a policy—taken out by the person whose life is insured, and in which the sum named is made payable to himself, his executors, administrators or assigns—expressly provided for the payment of the sum stipulated when or if the insured, in sound mind, took his own life, the contract, even if not prohibited by statute, would be held to be against public policy, in that it tempted or encouraged the insured to commit suicide in order to make provision for those dependent upon him or to whom he was indebted. Nor does it consider that the case is any different in principle when such a policy is silent as to suicide, and the event insured against—the death of the insured—is brought about by his wilful deliberate act when in sound mind.

Coroner's Verdicts not to be Considered In Civil Cases.—Upon a rehearing, in the case of the Germania Life Insurance Company vs. Ross-Lewin, the supreme court of Colorado reverses the position it first announced, and rejects the construction which the supreme court of Illinois has put upon a statute similar to that of its own State and upon which statute the latter one was previously modeled, relative to the use of coroner's verdicts. It now takes the ground, Dec. 20, 1897, that the purpose of the coroner's inquisitions is merely to furnish the foundation for a criminal prosecution in case the death is shown to be felonious, and are of extrajudicial character. It says that in case of death under suspicious circumstances, or resulting from accident, the rule permitting inquisitions to be used in evidence would result in a race and scramble to secure a favorable coroner's verdict that would influence, and perhaps control, in case suit should be instituted against life insurance companies upon policies of insurance, and in cases of accidents occurring as the result of negligence on the part of corporations operating railways, street-car lines, mining for coal or the precious metals, etc. Law writers of late have frequently animadverted upon the carelessness with which such inquests are frequently conducted, and to allow inquisitions to be used in a suit between private parties upon a cause of action growing out of the death of the deceased, continues the court, would be to introduce an element of uncertainty into the practice, which, it thinks, would be contrary to public policy, and pernicious in the extreme; and for these reasons, the court concludes, upon careful consideration, it says, that the safer and better rule is to exclude such inquisitions.

Hypnotism Before the Court.—In the supreme court of California, in the case of the People vs. Ebanks, the ruling of the Trial Judge in reference to the effects of hypnotism upon the defendant, are interesting. The decision was reviewed by the supreme court of California. In this case a witness was called by the defendant who was charged with murder and an offer was made to prove by him that he was an expert hypnotist, that he had hypnotized the defendant and that when hypnotized the defendant had made a statement to him in regard to his knowledge of the affair, from which statement the witness was ready to testify that the defendant was not guilty and that defendant denied his guilt while in that condition. The Trial Judge sustained an objection to the testimony. He said: "The law in the United States does not recognize hypnotism. It would be an illegal defense and I can not admit it." Commissioner Searles, who prepared the opinion of the supreme court of California, wherein it, Aug. 23, 1897, affirmed the judgment of conviction of murder in the first degree, said "We shall not stop to argue the point, and only add the court was right." Commissioners Belcher and Chipman concurred. Justice McFarland said: "I concur in the judgment and in the opinion of Commissioner Searles, but what is said in the opinion on the subject of hypnotism must be taken as applicable to the testimony offered on that subject in this case, which was clearly inadmissible, and not as covering the whole subject. It will not be necessary to determine whether or not testimony tending to show that a defendant committed the act charged while in a hypnotic condition is admissible until a case involving that precise question shall be presented." In this utterance, Justices Henshaw and Van Fleet concurred.—*Medico-Legal Journal*, December.

Qualification of Expert as to Poisons.—Notwithstanding that the supreme court of Colorado says it is seldom that a witness is presented whose general competency, not only in the practice of medicine, but in toxicology, is so well established as was that of Dr. Eskridge upon the trial of the case of the Germania Life Insurance Company vs. Ross-Lewin, the trial court refused to receive his testimony with reference to the effects of cyanid of potassium upon the human system, for the reason that he had had no actual experience with poisoning from cyanid of potassium. This ruling the supreme court pronounces clearly erroneous. It says new poisons are constantly being discovered by scientists, and under the rule announced by the district court all inquiry as to the result of such new poisons upon the human system from experts would be excluded. In fact, under that rule, expert evidence would be excluded in all except those cases in which some of the usual and well-known poisons were resorted to. And the supreme court suggests that it would offer a premium to the ingenuity of criminals and others in the selection of rare and unusual poisons to destroy human life. For these reasons, the court declares the rule entirely too technical, and not supported by reason or authority. Moreover, while in some States it has been held that the decision of the trial court upon the competency of a witness to testify as an expert is conclusive, the supreme court of Colorado takes this opportunity of declaring for the contrary rule as supported by the weight of reason and authority and because it has the sanction of the supreme court of the United States.

Better Have Your Family Physician.—

Jest keep the heart a-beatin' warm,
Be kind ter every feller;
Look for the rainbows in the storm,
But—carry yer umbreller!

Be brave ter battle with the strife,
Be true when people doubt you;
Don't think that money's all in life,
But—carry some about you!

An' when it's time ter shuffle off,
An' you have done yer mission,
Jest put yer trust in Providence,
An' call a good physician!

—*Atlanta Constitution.*

Recent Experiences with Cataract Operations.—At the recent Moscow Congress, Knapp of New York reported 1050 cataract operations, of which 400 included all complicated cases. The method of operation was usually a simple extraction without iridectomy, and the incision at the border of the transparent cornea almost half its extent. The capsule was opened with the cystitome to the extent of 5 or 6 mm. in the upper part of the iris, so that the torn pupillary edge of the iris and the wounded capsule should not touch. Pressure at the lower part of the cornea easily delivers the lens, but contact of the border of the lid and the corneal wound should be avoided. Both eyes are bandaged afterward and the dressing changed after twenty-four hours, when any prolapse of the iris can be disposed of. Reaction of an inflammatory nature was limited to six cases of slight iritis, two cases of partial wound infection and four cases of purulent infection of the cornea. In 355 operations prolapse of the iris occurred fifteen times (7.6 per cent.) and was successfully treated by iridectomy. Secondary operations were done in 40 per cent. of the cases. In three cases glaucoma following discission was observed. Recovery was obtained by means of iridectomy, eserin and morphin. In the last 400 cases good vision was obtained in 93 per cent., fair in 4.5 per cent. and total failure in 2.4 per cent.—*Archives of Ophthalmology.*

Therapeutic Value of Spleen Extract.—The *Edinburgh Medical Journal* for February, contains the results of an investigation extending over two years and establishing the therapeutic value of this extract. Briefly, "it aids digestion and nutrition, increases the cutaneous activity, stimulates the glandular activity of the skin, etc." In the first class of cases, chronic inertia, mental and physical, after a year's treatment the mental result was *nil* in a few, slight improvement in a few and recovery in two. The second class included recent cases of insanity due to physical exhaustion and the results were more prompt, first physically, then mentally, the majority being improved and some completely restored. The effect on the pulse and temperature, the bowels and urine, is yet to be determined definitely; in some the appetite improved, in more the digestion; the weight curves varied, increase of weight being the rule; in all the women there was increase of hemoglobin and red blood cells with one exception; color and warmth of the skin with softness and elasticity was noted; mentally, exhibition of temper was noted in both sexes, more so in the males. The author had previously used thyroid extract with no success in these mental cases. He believes that, "spleen extract, if less phenomenal in its effects than thyroid, is conducive to more lasting results, that it is surer, and still more important, exceedingly safe," but much smaller doses are sufficient to produce pyrexia, etc., especially after use of the etherial extract.

Suits by Both Physician and Patient against Railway Company.—One of the points sought to be made in the case of Smith vs. the Chicago & Nothwestern Railway Company, an action brought to recover payment for medical services rendered in the treatment of an injured employe of the company, was that the plaintiff physician was estopped by having given testimony showing the service rendered and the value thereof, in an action brought against the company by the former patient, in order to enable the latter to recover therefor. On the trial, the jury were instructed that if the physician was a witness in the other case, and for the purpose of enabling his former patient to recover against the railway company, he gave testimony that he was the physician in attendance, and performed the services, and of their value, thus enabling the former patient to recover of the company for such services, he, the physician, was estopped to recover in this suit of his own. But this was followed by another instruction that if the jury believed that at the first trial, and when the physician was examined as a witness, in answer to the question with reference to his bill for services he said: "I have a suit pending against the company for my services, and I expect to collect for my services from the defendant," or words of a similar effect or import, then there would be no estoppel. This, the supreme court of Iowa holds correct, December, 1897. It says that the doctor owed the railway company no duty, when asked, on the first trial about his services, to decline to answer, and inform the court that he had a suit pending for such services. He was a witness in court, and, in a sense, under the direction of the law. The defendant company was present, with full opportunity to insist upon a disclosure of the facts; and if the witness gave them, and, in so doing, it was made to appear that he was a claimant for such services himself, the court maintains, the basis for an estoppel against him in his own suit failed.

New York Skin and Cancer Hospital.—The New York Skin and Cancer Hospital now has a proper building. For fifteen years it has occupied a dwelling house, 243 East Thirty-fourth street, which was altered over, but on March 5 the new hospital building, Second Avenue, corner Nineteenth Street, was opened with appropriate ceremonies. After a few introductury remarks by the president, Mr. J. Cleveland Cady, Dr. A. Jacobi, president of the medical board, made an address, dwelling on the necessity and value of special hospitals and the work of this, the only institution of its kind in the United States. Dr. L. Duncan Bulkley then made an address, reviewing briefly the origin and early history of the Hospital, and its work during the fifteen years of its existence. He called attention to the fact that the old city of New York had grown at the rate of 50,000 inhabitants a year for the past ten years, and suggested that the hospital accommodations had not kept pace with the growth of the city. He mentioned that most of the other special departments of medicine had special hospitals, but until the establishment of the New York Skin and Cancer Hospital there had been none of the kind in this city or country. He instanced the large provision made for skin diseases in Paris, Vienna, Berlin and all the cities of Europe, Great Britain having twelve special hospitals of this kind. Beginning in a very small way and with no endowment or pledged support, the Hospital had received $375,000 during the past fifteen years, of which $75,000 had come from board of patients, and also of drugs to out-patients. Of the $300,000 contributed from outside, the hospital now had $25,000 invested for five endowed free beds, and had paid $150,000 for the new building, which was free of debt; but, as it had no permanent or definite income, he earnestly asked gifts and moral support from those present. During the fifteen years the Hospital had treated 25,031 patients, of which 22,159 had been out-patients, had made 118,154 visits to the Hospital, and for whom 263 prescriptions had been written and filled. The in- ents had spent 165,077 in the Hospital. He called atten- to the value of the Hospital as an educational center, ancing that thirty young men had been internes and had uired a knowledge of these diseases second only to that ained by prolonged study abroad. He also stated that as proposed to have clinical lectures in the Hospital, free hysicians, which were to be further illustrated by a col- ion of Paris models and colored plates which had been ned to the institution. The new building is a modern fire- of structure of four stories and basement, containing about ty beds for patients. Of these, seven are in private rooms. the top floor there is a modern operating room, well uipped, the Worden ward for children and most of the vate rooms. On the next two floors are four wards for male d female patients with diceases of the skin and cancer. On e ground floor is the large out-patient room, with consulting oms, pathologic laboratory, drug room, office, reception om, etc. In the basement there is a complete set of baths, cluding Turkish, Russian, needle and plunge; besides the tchen, laundry, dining rooms, etc. The lighting, heating d ventilation are of the most approved kind.

Wanted.—We desire to secure a copy of No. 11, Vol. iii, of e JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION for com- etion of above volume for a foreign library. Anyone having is number to spare will confer a favor by returning same to is office and we will remit charges.

Acute Otitis and Mastoiditis Cured by Intercurrent Erysipelas.— tein reports a case so severe that trephining of the apophysis as decided upon, when suddenly the patient was attacked ith erysipelas of the nose, extending to the mastoid region nd the diseased ear. The attack lasted two weeks and the ther trouble vanished with it.—*Semaine Méd.*, December 15.

Histo-psychology.—In describing two cases that combined the wo syndromes of meningism and catalepsy, Dupré ascribes them to two factors, a grave toxi-infection and a psychopathic predisposition. In toxic encephalopathy the form of the accident is determined at least as much by the psychopathic disposition of the subject as by the pathogenic properties of the poison (uremic). This explanation will probably be confirmed by the new science now being evolved by our progress in histologic technique and psychlogic analysis which Soury calls histo-psychology.—*Presse Méd.*, January 22.

Histologic Investigation of the Prostate after Castration, etc.—Extensive experimental research at the Histologic Institute at Nancy in regard to the atrophy of the prostate after castration, vasectomy and the new method of intra-epididymitis injection of a 20 per cent. solution of zinc chlorid resulted in evidences of regression of the glandular substance with considerable development of the interstitial conjunctiva, and the size of the gland very much reduced, especially in the pig. These results were invariably found after castration and also after the sclerogenic injections, not so constantly after vasectomy (beeves, sheep, pigs, dogs, guinea pigs).—*Presse Méd.*, January 22.

Gleanings.—An exhibit of universities is to be one of the features of the Paris Exposition.—Professor Ruggi of Modena recently performed his thousandth laparotomy.—Unilateral, repeated pains in the articulations, myalgia or neuralgia may prove the precursors of hemiplegia; especially important in the diagnosis if the vascular system shows a predisposition to the affection (*Journ. de Méd. et de Chir.*, 1898, No. 1).—If in convalescence from pneumonia the valvular sound assumes a "smothered" tone, becoming later "smothered and hard," it is an indication of incipient ulcerous endocarditis, which should receive prompt treatment without waiting for further indications (*Gazz. d. Osp. e d. Clin.*, January 20).—Jean Pasteur is said to receive $110 a day from Cornelius Vanderbilt, for his medical services, accompanying him on the yacht *Catania*.—The viceroy of India has sent to England for more medical assistance. He asks for eight physicians, two women physicians and twenty-five nurses.

Anatomic Alterations in the Genital Organs after Sexual Operations to Relieve Hypertrophied Prostate.—B. Floderus contributes an article to the *Nordiskt Med. Ark.* of January 10, based on the necropsy of thirty-six cases previously operated. In twenty the examination was both macro- and microscopic (testectomy fourteen, vasectomy five, combined one). He adds a number of illustrations which show that these operations fail to produce any alterations in the organized tissue of the prostate. The decrease in the size of the prostate, which, he adds, is inconstant and seldom equal to the extent of the hypertrophy, is not due to any alterations in the organized tissues but is rather to be attributed to a diminution in the elements circulating in the organ, the blood and the lymph. The importance of this diminished congestion from the functional point of view is less apparent in the prostate proper than in the prostatic portion of the urethra and neck of the bladder. In normal prostates a genital operation may induce alterations in the organized tissue, but this he considers impossible in senile hypertrophy to any appreciable extent. The evidences of fatty degeneration, etc., are no more than is observed in non-operated hypertrophied prostates.

Gladstone's alleged Indifference to Sanitary Legislation.—An old medical friend of Mr. Gladstone and who had been somewhat of a sanitarian all his life, is wont to complain that he has never been able to enlist the attention of that mind of large and multitudinous interests in questions of sanitary reform, questions of infinitely greater importance to Englishmen than the troubles of Bulgaria and Armenia. This venerable physician has come to the conclusion that sanitation lacks in those "showy" qualities that lead public men to become the champions of subjects that excite the *vox populi* The best way to get politicians to consider the public health is to educate people up to that point where the latter will begin to insist upon having that theme put as "a plank in every platform." When votes are to be caught by pledges on behalf of sanitary reforms and administrations are turned out for not redeeming such pledges, then will the statesman arise to the needs of the commonwealth, and we will view the upbuilding of a national Department of the Public Health. It is not difficult to imagine how different might have been the position of public medicine before the world if Mr. Gladstone had, in the early part of his career and later, adopted sanitation as one of his war cries. It can not be said that his attention was not properly called to the subject, for his lively foeman, Disraeli, in the 70's, threw down the challenge in a proposition that speedily sped around the English-speaking world, to the effect that "the first consideration of a minister should be the health of the people."

The Semeiologic Value of Abnormal Reactions of the muscles and nerves, was the subject of an address by E. Doumer at the Brussels Congress of Neurology. He asserts that it is only in quite exceptional cases that it is possible to excite exclusively the muscular fiber. In most cases the muscular reactions obtained by applying electric excitation to elective points on the muscles are due mostly to excitation of the terminal filaments of the motor nerves. The term "exploration of the muscles," used so frequently in electro-diagnosis, is therefore incorrect. The reaction of the muscle to the excitation of the nerve, shows that this excitation is transformed at the exciting point into a nerve wave which in its turn acts upon the muscle. After studying the abnormal reactions hitherto described (reaction of degeneration, of compression, of the diathesis of contractions, myotonic, etc.), which are in reality electric syndromes formed by the elementary reactions, he arrives at the following important conclusions in regard to these elementary reactions: Faradic and also voltaic hypo-excitability may depend upon an alteration in the reacting organ (muscle), as well as upon an alteration of the excited nerve. It always corresponds to an alteration in the nervo-muscular system situated *below* or *at* the point excited. Among the qualitative modifications of voltaic excitations he asserts that what he calls "Erb's reaction" always corresponds to a more or less profound alteration of the peripheral motor neurons at the very point of the excitation. It is absolutely independent of the lesions which may be situated above or below this point. The other elementary reactions are still too little known for positive clinical deductions. He urges the adoption of methods of exploration in electrodiagnosis which will determine the characteristics of the excitation, and the curve of the reaction, and suggests that the principles necessary for the establishment of such methods may be found in Professor d'Arsonval's remarkable works.

Fatality Following a Controversy Between Medical Men.—A letter from the University of Bonn recites a tragedy following a difference between surgeons. An armed encounter between members of the medical profession at this the close of the nineteenth century was certainly not to be anticipated, but the old saying that it is always the unexpected which arrives has once more been verified. It is only too true that a duel was recently fought at Bonn, the combatants being both medical practitioners, and most unfortunately one of them met with his death from a penetrating wound of the thorax. It seems that two of the assistants of a surgical clinic named Reusing and Fischer, had a violent altercation over a professional matter, the former accusing his colleague of malpractice in the conduct of an operation, and as apparently there was no older and wiser person at hand to pour oil on the troubled waters a hostile meeting ensued, with the above mentioned deplorable result. That duels should still survive on the Continent, especially in military circles is perhaps not to be wondered at under the existing regime, but happily the vast majority of medical men of all nationalities are the possessors of well balanced minds, and recourse among them to the *argumentum baculinum* for the adjustment of technical disputes must be an altogether exceptional occurrence. Complaints are often heard of the overcrowding of the medical profession on the other side of the channel, but of all depletory methods the slaying of one's confrère is surely the least philosophic. A duel at the present day is an anachronism. As a mode of settling scientific controversy it is not only out of date, but also about the most illogic procedure conceivable. Killing an opponent does not prove the survivor's case; while the gratification of an ignoble feeling of personal resentment is dearly purchased at the expense of lifelong remorse. The principals in a duel are blameworthy, but for them there are excuses, seeing that most human beings are more or less passionate by nature. For the seconds, generally speaking, there is absolutely nothing to be said. They are simply the abettors of a crime in which they run no bodily risk, and it is against them that retributive justice should be mainly directed. If seconds would only consider the heinousness of their position, there would soon be an end of dueling.

Ohio Law Constitutional.—The constitutionality of the Ohio law passed Feb. 27, 1896, "to regulate the practice of medicine in the State of Ohio," was attacked in the case of France vs. State. One objection made to the statute was that, by those provisions which authorize the medical board, for the causes therein mentioned, to refuse or revoke certificates of qualification required of physicians before they are entitled to practice in Ohio, and provide for an appeal to the governor and attorney general, it assumes to confer judicial power which, under the State constitution, belongs exclusively to the courts. Undoubtedly, says the supreme court of Ohio, Oct. 26, 1897, the authority conferred by the provisions referred to includes the power to examine into and decide questions requiring the exercise of judgment, such as might not inappropriately be conferred on a court. Nevertheless, it holds that the power conferred on the board is administrative in character, and not judicial, within the meaning of the constitution; nor made judicial by the circumstance that an appeal is allowed from its decisions to the governor of the State and the attorney general. It further holds that the statute is prospective in operation, and in no respect obnoxious to section 10 of article 1 of the Federal constitution, which forbids the enactment of *ex post facto* laws and bills of attainder by the States. Neither does it consider that the regulations adopted by this statute infringe upon the privileges and immunities guaranteed by section 2 of article 4 of the Federal constitution to citizens in the several States, nor abridge those secured to citizens of the United States by the fourteenth article of amendment of that constitution. It is competent, the court declares, for the State, under its power to provide for the welfare of its people, to establish needful regulations, and impose reasonable conditions, calculated to insure proper qualifications, both with respect to learning and moral integrity, of persons desiring to engage in the practice of medicine in the State, and require compliance therewith by such persons before they shall be permitted to practice within the State. Of that character, it pronounces the regulations adopted by the statute in question, which it accordingly holds constitutional and valid.

Societies.

The following recent meetings are noted:

California.—Fresno County Medical Society, Fresno, March 1.

Connecticut.—Bridgeport Medical Society, March 2.

Illinois.—Chicago Pathological Society, March 14; East St. Louis Medical Society, March 7.

Indiana.—Bartholomew Medical Society, Columbus, March 1; Marion County Medical Society, Indianapolis, March 1; Monroe County Medical Society, Bloomington, March 8; Tippecanoe County Medical Society, La Fayette, March 2; Vigo County Medical Society, Terre Haute, March 3.

Iowa.—Semi-annual meeting of the Medical Society of the Missouri Valley, Red Oak, March 17.

Massachusetts.—Everett Medical Society, Boston, March 1.

Michigan.—Grand Rapids Medical Society, February 28.

Minnesota.—Minnesota Academy of Medicine, St. Paul, March 2; Ramsey County Medical Society, St. Paul, February 28.

Missouri.—St. Louis Medical Society of Missouri, March 12.

New York.—Binghamton Academy of Medicine, March 3; Broome County Medical Society, Birmingham, March 3; Herkimer County Medical Society, Herkimer, March 1; Hornellsville County Medical and Surgical Association, Hornellsville, March 1; Queens County Medical Society, Jamaica, March 1; Syracuse Academy of Medicine, March 8; Utica Medical Library Association, March 7.

Ohio.—Lucas County Medical Society, Toledo, March 4; Tri county Medical Society, Conneant, March 1; Union Medical Society, Chicago, March 14.

Pennsylvania.—Luzerne County Medical Society, Wilkesbarre, March 2; York County Medical Society, York City, March 3.

Wisconsin.—Waupaca County Medical Society, Manawa, March 5.

Denver.

The Meeting of the American Medical Association.—The Denver and Arapahoe Medical Society, to whose successful efforts the State of Colorado owes the honor of securing the next Convention of the American Medical Association will not be found dozing when the jolly Esculapians are here. It is not expected that the members of the Association, learned and devoted to pure science as they are, shall subsist on pure air, glorious sunshine and mountain views. The people of Colorado, the medical men as a body, with the Denver and Arapahoe Medical Society at the head, intend to also add to the spiritual pleasures those of the flesh. The society has appointed a committee on entertainment consisting of men versed in that particular branch of science, and they will fulfill their onerous duty to the satisfaction of all. The entertainment to be given by the local medical society will be one of the prominent features of the convention, and the palate of the most fastidious will never forget the event.

Dr. CARL JOHNSON, vice-consul and port surgeon. Dr. Johnson has sailed for Amoy, China, at which port he will serve in the above double capacity.

Cincinnati.

THE mortality report for the week shows: Still-births, 8; zymotic diseases, 13; phthisis, 12; other constitutional, 6; local, 59; developmental, 11; violence, 6; under one year, 21; between one and five, 15; total, 107; annual rate per thousand 13.73; preceding week, 117; corresponding week, 1897, 103; 1896, 120; 1895, 123.

Dr. W. E. LEWIS announces a class in anatomy for students in medicine, dentistry, art, physical culture, calisthenics and obstetrics, open to both sexes, beginning April 4; class to meet Monday, Wednesday and Friday from 8 to 9 P.M., at the Cincinnati College of Medicine and Surgery.

THE ACADEMY OF MEDICINE held their annual election March 7, and the following officers were chosen: President, Louis Schwab; vice-presidents, J. C. Oliver and Estella Riley; treasurer, S. E. Allen; secretary, W. H. Crane; financial secretary, M. A. Tate; corresponding secretary, F. E. Kugler; trustees, A. I. Curson, N. P. Dandridge and J. T. Whittaker.

THE representatives of the several medical societies have joined in an attempt to secure an amendment of the present medical law. The intention is to increase its present effectiveness by making it more stringent and more in conformity with the medical laws of New York, New Jersey and Pennsylvania which are much more rigorous than the twenty other States having a specific law. The outcome of this proposed amendment will be to practically make the Board of Registration a board of examination for the licensing of all practitioners of medicine, whether graduates or not.

THE ANNUAL REPORT of the State Board of Registration and Examination gives the following summary: Total number of certificates issued, 8231; to graduates, 7521; to legal practitioners, 697; by examination, 13; number rejected, 339; graduates, 121; legal practitioners, 204; examination, 14. Cash balance on hand at beginning of the year, $5,460.56; disbursements, $10,429.87; total deposited with State Treasurer since passage of the Musgrove Law, $25,919.62.

Detroit.

WAYNE COUNTY MEDICAL SOCIETY.—At the regular meeting of this society, March 10, Dr. W. C. Stevens read a paper on "Habitual Abortion." The Doctor took up the subject only in so far as it relates to those cases of habitual abortion which result in women who show no signs of hereditary taint, or any constitutional dyscrasia, and who have no lesion of the parturient canal. He reported the history of a case occurring in his own practice of a woman, who during her twenty-five years of married life, had been pregnant thirteen times. Seven times she aborted and six children were born to her at full term. The etiology of the case was very obscure, as there was no apparent cause for the abortions, either local or general. During treatment her gestation would go on to full term, but if the treatment were remitted abortion would supervene. The treatment recommended by the Doctor in this and similar cases was the absolute avoidance of heavy work, hygienic measures, properly fitting and light garments (the skirts being supported from the shoulders), plenty of sleep, and daily sponge baths. The medicinal measures consist in the use of mild laxatives when necessary, tonics, assafetida, Jamaica dogwood and black haw. Dr. Lucy J. Utter read a paper on the subject of the "Constitutional Causes of Abortion," referring particularly to syphilis as an etiologic factor. Dr. C. D. Aaron presented a paper on the "Relation of Hemorrhage of the Stomach to Menstruation." The Doctor stated that hemorrhage from the stomach may occur in gastric ulcer, carcinoma, heart disease, portal obstruction, cirrhosis of the liver, scurvy, yellow fever, acute yellow atrophy of the liver, rupture of an aneurysm and active hyperemia. To the last named class belongs hemorrhage from the stomach co-incident with menstruation. The Doctor concluded that patients who suffer from gastric hemorrhage always present symptoms of indigestion, and that therefore when a patient exhibits symptoms of indigestion during a menstrual period in which the flow is scanty, gastric hemorrhage must be *suspected* even though vomiting does not occur.

Philadelphia.

COLLEGE OF PHYSICIANS.—"A Consideration of the Real Value of the Cold Bath Treatment of Brand in Typhoid Fever" was the title of a paper by Dr. Hobart A. Hare, which led to a spirited discussion at the meeting held on the 2d inst. The fact that the author had himself recently suffered with a severe attack of typhoid and had enjoyed (?) a personal experience of the Brand method, in addition to the fact of his prominent position as a writer and teacher of therapeutics, gave special interest to the expression of his views upon this important subject. He said that a very decided decrease in the mortality of typhoid fever had unquestionably occurred of late years, but much of this is undoubtedly to be ascribed to improvements in nursing, in sanitation, and in other methods of treatment, which are now employed in conjunction with the Brand system. In reply to his own query of how much of the improved mortality is fairly to be ascribed to the baths, he said that the difference between 10 per cent. mortality when the baths are not given and 7.5 per cent. when the baths are given, or 2.5 per cent., might be fairly credited to the cold bath treatment. Against this he placed the facts that the course of the disease is prolonged, hemorrhages and relapses appear to be more frequent, and perforations occur in the same proportion and certainly are not lessened in frequency. While admitting the usefulness of the bath in appropriate cases, he deprecated its too frequent employment, protesting against routine management. In the great majority of cases the early use of calomel, symptomatic treatment, and moderate stimulation, with cold sponging, not merely to the extremities but the back especially, to reduce pyrexia, would prove sufficient, with the aid of proper diet and judicious nursing, to bring about recovery of the patient, but each case should be considered as an individual one and treated on its merits as an individual. In the discussion, the advocates of the Brand method were decidedly in the majority. Dr. Wm. Osler said that at Johns Hopkins, out of 684 cases treated, the mortality was 8.1 per cent. and he was convinced that if generally used throughout this country, the Brand method would prevent five or six deaths out of every hundred cases of typhoid fever, cases which in his opinion could not be saved by any other known method of treatment. Dr. James Tyson stated that there is not only a decided reduction in the mortality rate, but there is also less delirium and less diarrhea, and the type of the disease is made milder. He had not seen any harmful effects and preferred the routine employment, on account of the fact that although discrimination is desirable, it is difficult and not always practicable. Dr. John H. Musser endorsed the preceding speaker's remarks and said that he had never witnessed any ill effects, but on the contrary had observed relief from threatening complications. He advised modification of the cold bath in certain cases. Dr. J. P. Crozer Griffith said that at the Children's Hospital he is accustomed to place the little patients at first in a warm bath (95 degrees F.) and then to gradually reduce the temperature (to 85 degrees) and claimed great reduction in the mortality. Dr. H. C. Wood, basing his remarks on twenty-five years experience with this method, stated that each years use only confirms him the more as to the value of the cold bath treatment of typhoid fever. He considered the object of the treatment to be the abstraction of heat as rapidly and with as little violence as possible to the patient. He thought that it might have contraindications, especially when begun late in the course of the fever, and in asthenic cases. Dr. S. Solis Cohen said that he finds the application of the ice bag over the abdomen a useful expedient to reduce temperature. In reply to Dr. A. V. Meigs, who criticized the method and denied that it accomplished all that had been claimed for it by enthusiastic advocates, Dr. A. A. Eshner said that Brand did not advocate the indiscriminate and routine employment of cold baths, but on the contrary their systematic and discriminate employment. Dr. T. M. Balliet claimed that where bathing with cold water was not practicable, as among the very poor, he had exposed the fever patient to cold air, with the same object in view, and had never seen ill effects.

In closing the discussion Dr. Hare explained that he did not dispute the value of hydrotherapy in typhoid fever, but deprecated routine treatment of any kind. It may not be amiss to add that, in private conversation, Dr. Hare referring to his own experience with the cold bath, stated that he dreaded them more than he could describe and that in the whole course of his disease he could only summon up resolution enough to take three. He also remarked that even if he knew that the cold bath would improve his chances of recovery 25 per cent. he would refuse to take them except out of regard for and a strong sense of duty to his wife and children. His own personal experience with the treatment as administered at one of the best city hospitals had inspired him with such a physical antipathy and dread to the cold bath that he could never prescribe it as a routine measure and would only use it where it was imperatively demanded. He did not regard it as a finality in the treatment of typhoid fever and hoped in the course of a few years to see a more humane and less disturbing method take its place in the estimation of the profession.

At the same meeting, Dr. Thomas H. Dunn of Westchester reported a case of "Parasitic Chyluria" occurring in an adult woman, who had always lived in Pennsylvania. For several years she had been subject to headache with gastro-intestinal disturbance and suppression of urine, the attacks lasting about two days. Following this she passed milk colored urine, which not only contained albumin, red and white blood cells and fat, but also many active organisms, which were found to be embryonic *filariæ sanguinis hominis*. This case, according to Dr. Osler, was the first of which he had any knowledge, in which the disease was undoubtedly contracted in the North. Dr. F. P. Henry had exhibited specimens before the College in 1896, of living filaria in blood taken from a colored woman, 29 years of age, who was formerly a resident of Florida, where it was believed she contracted the disease.

THE BOARD OF HEALTH of Philadelphia in opposition to the sentiment in the profession which led to the appointment of a committee some weeks ago, to confer with the Board and attempt to secure some modification of the rules requiring the placarding of private houses for cases of infectious disease, has issued the following circular:

WHEREAS, The members of the Board of Health of Philadelphia are unanimously of the opinion that the strict enforcement of Section 2 of the "Act to provide for the more effectual protection of the public health," approved June 18, 1895, is absolutely necessary to prevent the spread of disease, and

Resolved, That hereafter, without exception, all cases of cholera, smallpox (variola or varioloid), scarlet fever, typhus fever, yellow fever, relapsing fever, diphtheria, diphtheric croup, membranous croup, or leprosy shall be placarded. This is to be done by placing a placard at the most conspicuous point of every entrance of the affected premises. Should the medical inspector be in doubt as to what is the "most conspicuous point," or as to the necessity of further placarding, isolation or quarantine, he shall at once communicate with the chief medical inspector and follow his instructions.

All reports of the placarding of houses shall be made in duplicate, a copy of which shall be forwarded to the superintendent of police, who is requested to have them referred to the respective police districts, and the lieutenant instructed to report to the superintendent all cases in which the placard is removed. Such reports to be returned forthwith to the bureau of health.

When it is reported at the office of the chief medical inspector that the placard may be removed, he shall notify the superintendent of police in the same way he used to notify him of the original placarding.

THE POLYCLINIC HOSPITAL free lectures on popular medical subjects which were delivered by the Faculty last spring, met with such favorable reception that a similar course has been arranged for the present Lenten season. The dates and subjects are appointed as follows, all lectures being given at 5 P.M.: March 4, The Filtration of the Water-supply of Philadelphia, by Henry Leffmann; March 9, The Prevention of, and Nursing in Typhoid Fever, by Augustus A. Eshner; March 11, The Hygiene of the Infant, by Edward P. Davis; March 16, The Care of the Eyes and the Influence of Defective Vision upon Mental and Physical Growth, by Samuel D. Risley; March 18, Surgical Emergencies, by Lewis W. Steinbach; March 23, The Essentials of Health, by Judson Daland; March 25, Hypnotism and Allied States, by William G. Spiller; March 30, The Cultivation of the Voice, by G. Hudson Makuen.

CHANGE OF ADDRESS.

Ammerman, U. S., from Keoknk, Ia. to Harbine, Neb.
Bardon, F., from Keokuk, Ia. to 621 Monroe St., Quincy, Ill.
Back, A. J., from Keokuk, Ia. to Montpelier, Ohio.
Buzarg, I. S., from Keoknk, Ia. to Belinda, Ia.
Booth, F. H., from 857 W. North Ave. to 662 Cortez St., Chicago, Ill.
Brenholtz, W. S., from Columbia to 36 E. Walnut St., Lancaster, Pa.
Beadles, E. St. Clair, from Water Valley, Miss., to San Diego, Cal.
Frissell, S., from 18 School St. to 181 State St., Springfield, Mass.
Friedel, M. J., from 468 Grand Ave. to 1228 Milwaukee Ave., Chicago, Ill.
Garvin, W. C., from Millington to Vassar, Mich.
Ghrist, D. M., from Keoknk to Pella, Ia.
Hart, H. H., from 114 Powell to 2325 Bush St., San Francisco, Cal.
Jackson, G. E., from Wheaton to 262 Nicollet Ave., Minneapolis, Minn.
Luburg, J. N., from Keokuk, Ia. to Stafford, Ohio.
Layton, C. S., from Durand to Delray, Mich.
Morton, E. E., from Keokuk to Vincent, Ia.
Mitchell, A. H., from Deer Lodge to Warm Springs, Mont.
Noren, G. P., from Keokuk, Ia. to Geneseo, Ill.
Reed, W. H., from Keokuk to Perry, Ia.
Russell, C. R., from Keokuk to Ottumwa, Ia.
Rectanus, F., from Cincinnati, Ohio, to cor. Preston and Market Sts., Louisville, Ky.
Shollenberger, C. F., from 2162 Larimer St. to 2309 Larimer St., Denver, Colo.
Thomas, C. H., from Dansville, N. Y. to 1638 Locust St., Philadelphia, Pa.
Van Slyke, W. H., from Detroit to Tamarack Mine Hospital, Calnmet, Mich.
Whiting, E. D., from Alma, Mich. to Presbyterian Hospt., Chicago, Ill.

LETTERS RECEIVED.

Arnold, Philip, Elizabeth, Ill.; Alta Pharmacal Co., St. Louis, Mo.; Atwood Mfg. Co., Amesburg, Mass.; Ames & Frost Company, Chicago.

Bulkley, L. Duncan, New York, N. Y.; Ball, M. V., Warren, Pa.; Blaylock, Thomas, Springer, I. T.; Blees Moore Instrument Co., St. Louis, Mo.; Brothers, S. F., New York, N. Y.; Baker & Co., Ltd., Walter, Boston, Mass.

Class, W. J., Chicago, Ill.; Crane, A. W., Kalamazoo, Mich.; Cargile, Chas., Bentonville, Ark.; Crowell, H. C., Kansas City, Mo.; Coe, F. H. Seattle, Wash.; Coe, Henry Waldo, Portland, Ore.

Dellabaunty, D. F., Bloomington, Ill.

Eclipse Bicycle Co., Elmira, N. Y.

Ferguson, Frank C., Indianapolis, Ind.; Forrester, Joseph, Erie, Pa.; Fletcher, W. B., Indianapolis, Ind.; Farwell & Rhines, Watertown, N. Y.

Graham, J. W., Denver, Colo.; Gotham Co., The, New York, N. Y.; Goodwin, R. S., Thomaston, Conn.; Gleitsmann, J. W., New York, N. Y.; Goodrich Co., The B. F., Akron, Ohio.

Hektoen, L., (2) Chicago, Ill.; Hardin & Walker, Savannah, Tenn.; Hart, H. H., San Francisco, Cal.; Houghton, Mifflin & Company, Boston, Mass.; Howe & Co., C. H., Denver, Colo.

Imperial Granum Co., New Haven, Conn.

Jayne, W. A., Denver, Colo.; Justis Food Co., Syracuse, N. Y.; Jaques, W. K., Chicago, Ill.

Krüger & Co., Leipsig, Germany; Klein, W. L., Minneapolis, Minn.; Kelly, Howard, A., Baltimore, Md.

Lagorio, E. L., Norfolk, Va.; Lea Brothers & Co., Philadelphia, Pa.; Longmans, Green & Co., New York, N. Y.; Lehn & Fink, New York, N. Y.; Long, W. D., Reading, Pa.; Lewis, B. S., Camden, N. J.; Lord & Thomas, Chicago, Ill.

McLean, Angns, Detroit, Mich.; Marchand, Charles, New York, N. Y.; Medical Gazette Publishing Co., The, Cleveland, Ohio; Martin, Thos. Chas., Cleveland, Ohio; Maltine Co., Brooklyn, N. Y.; Monarch Cycle Mfg. Co., Chicago, Ill.; McCown, T. B., Chafin Bridge, Ill.

Newby, A., Nora, Ind.

Open Court Publishing Co., New York, N. Y.

Poole, W. H., Detroit, Mich.; Pope, E. D., Kountze, Texas; Purdue, Frederick Co., The, New York, N. Y.; Pilling & Son, Geo. P., Philadelphia, Pa.; Postum Cereal Co., Ltd., Battle Creek, Mich.; Pike, F. N., Fortress Monroe, Va.; Phillips Chemical Co., The Chas. H., New York, N. Y.; Prudential Insurance Company, The, Newark, N. J.; Pheno-Bromate Chemical Co., The, New York, N. Y.

Rose, F. L., (2) Chicago, Ill.; Reynolds, H. D., New York, N. Y.; Richardson, H., Baltimore, Md.; Ricker, S. J., Aurora, Ill.; Rosenthal, Edwin, Philadelphia, Pa.; Remington Arms Co., New York, N. Y.

Stoelting, C. W., Detroit, Mich.; Schwab, Leslie W., Chicago, Ill.; Strawbridge & Clothier, Philadelphia, Pa.; Sherer, J. W., Kansas City, Mo.; Sewanee Medical College, Sewanee, Tenn.; Silver, D. R., Sidney, Ohio; Sellars, Chas. B., Zanesville, Ohio; Seabury & Johnson, New York, N. Y.; Schering & Glatz, (2) New York, N. Y.; Steele, Robert E., Beaver City, Utah; Spratling, Wm. P., Sonyea, N. Y.; Sargent & Co., E. H., Chicago, Ill.

Turnbull, Laurence, Rock Ledge, Fla.; Tiemann & Co., George, New York, N. Y.; Tilden Company, The, New Lebanon, N. Y.

Upjohn Pill & Granule Co., Kalamazoo, Mich.

Vance, A. J., Harrison, Ark.

Yates, H. W., Detroit, Mich.; Yocom, A. L., Chariton, Ia.

Welch, William H., Baltimore, Md.; Woodruff, Chas. E., New Orleans, La.; Wocher, Max & Son, Cincinnati, Ohio; Ward Brothers, Jacksonville, Ill.; Welch Grape Juice Co., The, Watkins, N. Y.; Western Wheel Works, Chicago, Ill.; Williams Company, The J. B., Glastonbury, Conn.

THE PUBLIC SERVICE.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from March 5 to 11, 1898.

Capt. Norton Strong, Asst. Surgeon, is granted leave of absence for six months on surgeon's certificate of disability, to take effect upon the expiration of the ordinary leave of absence granted him.

First Lieut. Thomas S. Bratton, Asst. Surgeon, upon the arrival at Ft. Niobrara, Neb., of First Lieut. Brainard S. Higley, Jr., Asst. Surgeon, will be relieved from duty at that post and ordered to Ft. Leavenworth, Kan., for duty.

The following named medical officers are relieved from duty at the Army Medical School in Washington, D. C., to take effect upon completion of the course at the school ending April 1, 1898, and ordered to take station as follows: First Lieut. Henry Page, Asst. Surgeon, Presidio of San Francisco, Cal.; First Lieut. Bailey K. Ashford, Asst. Surgeon, Ft. Sam Houston, Texas; First Lieut. Henry A. Webber, Asst. Surgeon, Ft. Reno, Oklahoma Ter.; First Lieut. Jere B. Clayton, Asst. Surgeon, Ft. Clark, Texas; First Lieut. Brainard S. Higley, Jr., Asst. Surgeon, Ft. Niobrara, Neb.; First Lieut. George Rauchfuss, Asst. Surgeon, Ft. Apache, Ariz.

A board of medical officers to consist of: Col. Dallas Bache, Asst. Surgeon-General; Major Walter Reed, Surgeon; Major James C. Merrill, Surgeon; Capt. William H. Arthur, Asst. Surgeon; First Lieut. Alexander N. Stark, Asst. Surgeon, is constituted to meet at the Army Medical Museum Building in Washington, D. C., on Monday, May 2, 1898, at 10 o'clock A.M., for the examination of candidates for admission to the medical corps of the Army.

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ADDRESS.

EVIDENCES OF THE PROGRESS OF NEUROLOGY AND MEDICAL JURISPRUDENCE.

Address of the Chairman, Presented to the Section on Neurology and Medical Jurisprudence, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

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In compliance with the by-law of this ASSOCIATION, which specifies the subject upon which the Chairman of each Section shall address its members, it becomes my pleasant privilege as well as duty to attempt a brief review of the progress made in neurology and medical jurisprudence during the past twelve months, and to hazard a few suggestions as to the conduct of the future work of the Section, which if they shall be adopted would, in my judgment, greatly improve the efficiency of its function.

And here it might be well to call to mind what the function of this Section is, and what we, who constitute its membership and attend its sessions from year to year, are attempting to accomplish.

No doubt the motives which influence us to attend these meetings annually are many and various. Social, fraternal, recreative, and perhaps at times even less laudable inducements than these call us together and cause us to seek fellowship with those whose paths of labor and experience are similar to our own, though found in fields far separated. But underneath these lighter and more transient motives for our assembling, will be found the imperative incentive of the love of truth, and the desire possessed by every earnest soul to seek it for its own sake and to promulgate it.

No bond less vital than this could have for fifty years maintained, in ever-increasing strength of membership and influence, this National ASSOCIATION, or have brought about the orderly segregation of it into the natural groups of Sections which have gradually evolved from it, like the members of one body fitly joined together, separate in function yet interdependent, essential each to all. It is the search after truth that has created this ASSOCIATION, and a more intimate and we trust more efficient search that has determined these differentiations.

The Section which we represent is one of the later developments, but its formation was a natural separation in the interests of greater precision in the search after the normal and abnormal phenomena of the nervous system, and in the attempt to know what is, and what ought to be, the law governing the courts in cases where medical questions are involved.

If, then, the *raison d'être* of this Section in common with others of this ASSOCIATION, is that, by means of it, the pursuit of truth in the fields which its title covers may be made more effective, we, its members, should see to it that this purpose be not lost sight of, but be made the primary motive in all of our contributions and discussions. We will learn from one who is well qualified to perform the task, how well the members of this Section have discharged this function hitherto, and we trust that the honorable record of the past will stimulate us to even greater zeal, and to the adoption of even more efficient methods for the future.

Months and years do not serve as mile-stones to mark the progress of human knowledge, or measure the evolution of discoveries or ideas. In an attempt to portray the advance made by the mind of man in mastering and comprehending the intricate play of energies in the midst of which it is placed and of which, in some sense, it is a part, we must depart from the imagery of the conquering army, moving on from victory to victory, where the date of each can be forever fixed in the time calendar of events, and adopt, instead, the figure of the growing plant, where the selective assimilation of the developing germ exhibits notable increase and elaboration, from seed to perfected flower or fruit, and yet when the eye is directed to a single day of that increasing growth, it might not discover any marked advance beyond the progress of the preceding day.

The growth of knowledge, like the growth of plants, may be ever active, and at no time can it be said with truth, that this or that stage of the growth is less important than another in attaining the ultimate perfection, and yet, to both the interested and casual observer, these stages may differ in interest and attractiveness, according as they reveal by their suggestiveness a less or greater glimpse of the broader truths that lie beyond, or open up more clearly the paths that give promise of leading to them.

These premises seem called for in view of the fact that in the twelve months that have gone by since last we met, the growth of neurology has not been signalized by any unusual outburst of fruitage or efflorescence. Yet they have been busy months for all who are actively engaged in any division of the broad field of neurology.

We can safely say that the work that has been accomplished in that time is superior, both in quantity and quality, to that done in any previous period of equal length in the world's history, and yet we are unable to refer to it as an epoch-making year in the progress of neurology, for it has not been marked by any notable discoveries either in the science or the art. Each worker has been busy digesting and assimilating the discoveries of previous years, and adding his mite of observation and fact to the store of knowledge already accumulated.

But when we recall that never before today have there been so many thoroughly educated and energetic physicians devoting their time exclusively, or for the most part, to the study of disorders of the nervous system, and are reminded that never have the resources of associated fields of research been so replete with helpful fact and suggestion, we can rest assured that, whether it is each moment apparent or not, the amount of actual advancement made in a year's time now is greater than was possible in any previous year.

But if we can not mark off the boundaries of the year that is just past so as to include within them many notable achievements to the credit of neurology, we can at least point to certain evidences that the growth is steadily enlarging, and is preparing for expansion into wider fields and greater usefulness. This is made evident by the capacity it has recently exhibited in the discovery and assimilation of new facts in the histology of the central nervous system.

Even though these discoveries have already to some extent, and may still further, require a reconstruction of the framework of our neural physiology, and consequently of our theories of the pathology of many diseases, and though our established modes of practice will likewise need to be modified in some respects to adjust them to the new conceptions of the neuron, yet the vitality of the plant is in no respect endangered, but rather quickened and strengthened by such radical changes in pabulum.

While we would all be disposed to smile at the absurdity of an attempt on the part of any one to deny, in the face of unmistakable demonstration, the revelations in cell structure and arrangement which the improved methods of staining and manipulation have made, yet it is a commendable conservatism that will not at once renounce old and well established theories, upon the announcement of some facts that appear at first glance to be antagonistic to them.

It is, on the other hand, equally commendable and a sign of healthful activity when a revolutionizing order of facts can be injected into a developing system of knowledge with no other effect than that of healthful stimulation of the normal processes to greater energy. The recent advances in cytology seem to have had none other than just such quickening effect upon all branches of neurologic research. Progress in neural physiology and pathology must of necessity follow closely on the advance made in more exact knowledge as to the structure and arrangement of the nerve cell, and it now appears clear that within the walls of this minute laboratory—the nerve cell and its prolongations—our attention for some time to come is likely to be arrested and fixed, for to it as the primary theater of all the activities of the nervous system, normal and abnormal, we have at last been led in the ardor of our search for the causes of the protean forms of nervous diseases and by our anxious desire to prevent them and to relieve the sufferers.

Again we may point with confidence to the recent accessions to our special literature as another substantial evidence of healthy growth in the science and art of neurology.

First assimilation, then construction, and finally secretion represents the natural sequence of organic processes. We have already so far matured that we have begun to give back to the world in permanent form some of the fruits of our researches and investigations. Quite a harvest in neurologic book-making has been garnered during recent years, and not a few of the best products have appeared during the last few months, and in this our American soil has been most fruitful and adds much to our credit for its excellence, unsurpassed as it is by that of any other country, even though there has been no famine elsewhere. The activity that has been shown by American authors recently in putting forth so many excellent text-books and monographs treating of nervous disorders, gives assurance that this branch of study will henceforth receive its appropriate share of attention in every well-devised medical curriculum, and that those already in the field of practice have now every facility for fully informing themselves as to the latest acquisition in this class of disorders. While the great bulk of that which has so far been published by American authors, and is original with them, treats mainly of the clinical aspects of neurologic questions, yet there are encouraging signs that it will not be many years before this country will be the leader in special research work in neural anatomy, histology, experimental physiology and pathology, as well as in the clinical study of the phenomena of the nervous system. For many years the experimental work in neurologic fields by American physiologists has received international recognition by reason of its value, and now in a dozen or more educational centers in this country laboratories have been established for special research work in neural pathology, which give promise of soon surpassing in their facilities for investigation, anything that the specialists of Europe have ever dreamed of. I need only call your attention to the comprehensive plan outlined by the Director of the Pathological Institute recently established by the Commission of Lunacy of the State of New York, and published in the bulletin of the State Hospitals of that State, to convince you that American neurologists have no narrow conception of the work which lies before them, nor any hesitancy in rightly undertaking to do it when the opportunity is offered and the facilities furnished.

From laboratories such as these we have a right to expect that our literature will soon be enriched with the products of well-planned research, which will materially aid us in clearing up the etiology and pathology of many nervous disorders which now baffle the skill of the clinician.

The universal interest and activity in compiling and promulgating neurologic knowledge has brought prominently into view the need of greater uniformity in the neural terms, especially with respect to those used to designate the various parts and locations in the central nervous system.

Science knows no national boundaries and the advance demands that provincialism in terminology give place to more cosmopolitan terms and that a language be adopted the significance of which would be the same wherever uttered. To this commendable purpose a well known American anatomist has devoted much time and scholarly ability for many years, and we are glad to see that at last his labors are claiming something of the favorable recognition they so richly deserve, and that the American Association of leading neurologists, together with the American Association for the Advancement of Science, and the Association of American Anatomists have formally stamped with their approval a certain number of terms, and have recommended that they be employed in preference to their less appropriate synonyms. The step is in the direction of clearer and more exact description, and will do much to rid our technical language of obscurity and confusion.

It would not be out of place, but rather an opporune and helpful act, for the members of this Secion to add their support, by vote or resolution, to his effort at uniformity and so declare themselves for reater simplicity and scientific accuracy in the xpression of thought upon subjects of special interst to us.

But it appears to me that in no way has neurology xhibited its vitality and progress in recent years to reater advantage than in the relationship it has hown itself to bear to those sciences of an altruisic type, which are the peculiar products of modern imes.

In the beginnings of any independent line of reearch among phenomena possessing an importance ufficient to form a distinct department of knowledge, uch as this of ours, there must of necessity be first period for collecting data; an accumulation of facts ith apparently little in common, except that they elate in some way to the field that has been chosen r separate consideration. The natural tendency uring this primitive period is for the mind of the bserver to be occupied with distinctions and differnces rather than with resemblances.

In the beginnings of neurology cases of nervous isorders and the features that characterize them ust needs first occupy the attention. The records f individual instances of disease presenting different hases must accumulate until, through repetition and mparison, a type is discovered and accepted for ach form of disorder which deserves a separate place the nomenclature.

This may be said to have been the period for neulogy in which it was engaged in establishing its ght to independent existence; when it was occupied ith marking out the boundaries of territory pecuarly its own. This pioneer work is now well done, nd may be said to be complete. Our right to sepaate existence has been established and recognized, nd our growth as a sturdy branch of medical knowldge has already borne rich fruit. But while enaged in this close analysis of the phenomena of disase in the realm of the nervous system, we have had equent occasion to note that much that we have me upon has a value beyond the limits of our ecial field. While searching for truth with the view making use of it within our limited sphere, we scover that its rays extend far beyond our little orld and illumine spaces upward, and beyond anying which the mind of man had hitherto attained.

The community of knowledge and of truth and e relationship of a part to the whole, is made evint by these researches, furnishing material aid to -workers in other fields, which at one time were ought to have but little in common with our own. is one of the most gratifying evidences of the owth in neurology that investigations in this field e daily proving more and more helpful in solving e problems of anthropology, education, psychology, iminology and sociology.

Each one of these departments of what may be rmed the humane sciences may be said to have had s origin in discoveries in neurology.

They are at least experiencing the transforming fluence of discoveries first made in our special field, d we are justified in claiming for ourselves priority the beneficent work which these associate sciences e, in their practical results, accomplishing in the tter conduct of our schools, asylums, reformatories and prisons, and in the more rational attitude of the public mind toward the defective and dependent classes of our fellow men.

It is with considerable diffidence that I venture to say a word regarding the present tendencies of medical jurisprudence, since neither my opportunities nor my training have prepared me for utterances on this subject that are worthy of much consideration. Indeed I have, in common with other members of this Section, questioned the propriety of our assuming to compass within the boundaries of our limited membership the entire range of topics that are grouped along the borderland where law and medicine unite. It is true that a very large and most important share of the problems which demand the attention of the physician and lawyer jointly arise within the boundaries of neurology, and it may have been wise at the outset to have appended the department to this Section, rather than to that of any other now existing.

But since there is not a Section of the Association whose members are not at times directly interested in the legal aspects of questions which of necessity arise in connection with their special line of work, and since in one Section especially (that of State Medicine) the legal relationship of the physician to the laity has been greatly enlarged within recent years, and is destined to become still more so in the future, it has seemed to me that the time is near at hand when the establishment of a distinct Section of Medical Jurisprudence is advisable. As it is now, seldom are papers, presenting the legal aspects of medical subjects, offered to this Section unless they relate directly to perverted action of the mind, the brain, or nervous system in some other part, and even many of these have been of too general interest to receive from the members of this Section alone fitting consideration and discussion. It would appear, then, that the time is at hand for the creation of a separate Section to be devoted in its work wholly to legal medicine. The field is already broad enough, and is every day enlarging.

To one not very familiar with the recent literature of medical jurisprudence, and yet who has attempted to make a cursory review of what has been presented on this subject in the law and medical journals during the past twelve months, it appears that in this line of work the courts have been chiefly occupied with cases of suspected poisoning, where medical questions involved have been as to the nature and actions of poisons, and methods of detecting them in the tissues of the body, either before or after death. These have been mainly questions of fact, calling for the testimony of the expert physiologic chemist and toxicologist, and in them no very broad principles of law or medical practice have been involved. There have been a few instances of another class of cases, however, in which a certain very important principle is involved, which appears to me worthy of being brought to your attention, as they furnish food for very careful reflection. The more so as the same principle, of the sacredness of the absolute rights of the individual, has been threatened by proposed enactments in several of our States during present and recent sessions of their legislatures. The citation of one case commented on in the March number of the editorial column of *The Green Bag*, will serve to bring this principle before you. I will quote this comment in full:

"A very novel case regarding the right of a surgeon to go beyond his specific authority in performing an operation was recently tried in London. Miss Beatty, a hospital nurse, submitted herself to Mr. Cullingworth, an eminent surgeon of London, for an operation of ovariotomy. It was admitted by the defendant that she forbade him to go beyond the single operation, but he testified that he refused to perform the operation under that condition and told her she must submit to his discretion. This she denied. Finding it necessary, in his opinion, to perform the double operation to prolong her life, he did so. He testified that in view of the patient's wish he had hesitated, but he concluded to overrule her objection. In consequence she felt compelled by conscientious scruples to break off her marriage engagement. The most eminent surgeons testified that they would refuse to operate under such a restriction. Sir Thomas Wells, however, the greatest expert, testified that he thought the double operation in this case was unnecessary, but he had no doubt the defendant acted conscientiously. The defendant and his assistant testified that the plaintiff would not have lived ten years without the double operation." There was a verdict for the defendant. This of course may have been based on a finding that the defendant had refused to submit to the condition, and that consequently the plaintiff had tacitly assented. If any inference is to be drawn from the case that a surgeon may exceed his specific instructions, not dissented from by him, even if he deems it necessary to prolong or save life, it is bad law. Miss Beatty had a perfect right to prefer to live for ten years, and to be for that time a wife and possibly a mother, rather than to live the ordinary length of time unmarried, or be a barren wife. The matter is probably less serious to the female sex than a somewhat analogous operation would be to the male, but we believe that it would be rather difficult to induce a judge and a jury to justify a surgeon in disregarding explicit instructions of a similar purport on the part of a man. If a second operation, in the case under consideration, should have proved necessary, it would have been easy to make it, and not unsex the sufferer at the outset. We confess that we are surprised at the verdict, and that in any view we regard the result as wrong. We have sympathy for a woman who demands that her sexual physiology be respected, despite the custom of surgeons. We fully agree with the *New York Law Journal* that, "Where a proposed operation is as clearly the subject of definite agreement as the one under consideration, and especially where the worst that could result from following the patient's directions would be the necessity of submitting to a second operation later, we think such directions should be accepted as morally binding upon the surgeon, and held legally controlling by the courts."

This case serves for a type of many, and the principle involved, is the sacredness of what Blackstone defines as the absolute right of the patient which no physician or surgeon may presume to invade at his own discretion, assuming to decide what is best for the patient without the latter's full acquiescence in that decision.

In the proposed legislative enactments above referred to, and which have been brought forward in so many different localities as to indicate a general tendency in this direction, the attempt is made to check the current of crime and misery at its fountain head by unsexing the inmates of institutions for epileptic and feeble-minded, and the inmates of prisons and houses of correction who have for the third time been convicted of crime.

The difference in principles involved, between such proposed legislation and in the special case just cited is, that in the latter case the surgeon assumes to violate the absolute right of the person of the patient in what he believes to be the patient's interest, whereas, in the former, society, by legislative enactment, undertakes to invade the absolute rights of the individual on the assumption that it is for society's own interest to do so.

This assumption on the part of society of the right to protect itself against possible future harm by encroaching upon ground that in the fundamental principle of law is regarded as sacred to individual rights, has found its champions and defenders among those high in authority in both medical and legal circles and this has opened up a field for medico-legal warfare upon which the contest will soon be raging. You can well see, without our attempting to discuss the various phases of this question at this time, that it is one worthy of our most serious consideration and concerning which it will be well for us to be forming an opinion.

The broad question as to how far society is justified in attempting to protect itself against remote and possible harm by provisions which curtail the inalienable rights of the individual, is one which to be rightly answered calls for the widest knowledge and the wisest judgments which the human mind can attain. It is even a question as to whether the solution of such questions as this will ever be rightly solved within the domain of civil law.

I will now venture to call your attention to a few features in the organization and management of this Section which seem to me to be in need of decided change if the work of the Section is to become a positive factor in the advancement of neurology.

Primarily the membership of this Section is too evanescent as yet to be relied upon for the prosecution of any persistent and settled purpose.

The various Sections of the AMERICAN ASSOCIATION should each be the culture field of the best thought, the most mature products of the human mind and skill in that division of medical work with which it assumes to deal.

The first requisite to this result is that the membership of each Section be made up of those who are interested and able in that particular branch of medical science above all others, and that they identify themselves with the work of the Section year after year.

This is not now the case. I do not know how it is with the other Sections of this ASSOCIATION, but this section has not at present any permanent membership upon which its officers can rely for support or assistance, in attempts to further the work of the Section. There is not even a list of members. Not the shadow of an obligation exists on the part of any member of the AMERICAN MEDICAL ASSOCIATION, as far as any tangible promise is concerned, to devote his efforts in the main to the interests of this Section.

You can very well see that this is a very insecure foundation upon which to construct a fabric of any permanency or value, and the marvel is that with such a loose organization this Section has been able to accomplish as much as it already has.

Steps should at once be taken to effect a more permanent organization. The membership of the general ASSOCIATION should be canvassed by the permanent secretary, by special committee, or by the council of this Section, and those members who wish to devote the whole or a share of their time to the work of this Section, be asked to declare themselves so that they may be counted upon hereafter to contribute to the work of this Section either in individual or associate papers or discussions. I personally very much doubt if this result can be brought about to the satisfaction of those interested in the permanent growth of this Section without making the secretaryship a permanent office, so that through his efforts the valuable experiences and products of successive years be preserved.

By such a change as this—a permanent secretaryship—our Section will begin to take on a vertebrate existence. but without one, at least, of such centers of ossification our undifferentiated, ameboid membership is likely to continue. I am aware that this suggestion, if thought worthy of adoption by you, will require a change of organization which transcends the powers of this Section, but in the interests of more efficient work we should not hesitate to ask that the power to effect such change be granted.

When once a fixed, rather than a floating membership, is secured, it will then be possible for the officers and council of the Section to institute changes in the method of preparing for the annual meetings that will make them much more effective.

If this Section is to fulfil its mission in bringing together the men and the conditions by which the science of neurology and medical jurisprudence are to be advanced, and if it is to serve, as it should, as the channel through which the latest and most enlightened conclusions in these special fields are to reach the great body of physicians, and so the laity, throughout this broad land, then such measures must be adopted as will keep the work of the Section at each meeting up to the requirements of the times, and prevent the wasting of valuable time and opportunity with trivial, trite, or inconsequent matter.

The main topics for consideration and discussion for each meeting should be determined upon many months in advance, and every care should be taken to have them fully presented. With a permanent secretary our official board would be well constituted to enable us to follow out a consistent plan and purpose in this regard, and our meetings could then be made the source from which the final and most authoritative word would be heard on the live topics of the day in our special departments of medical science and practice.

Into this Section of our ASSOCIATION should be brought the representatives of the various departments which are contributing to the advancement of those branches of knowledge which we are attempting to foster. The most learned anatomists and biologists, the ablest pathologists and physiologic chemists, the most experienced alienists and neurologists, and the wisest jurists which this great nation can furnish, are needed here to fitly deal with the problems which are continually before us for consideration. And where more suitably than in this special Section of our AMERICAN ASSOCIATION, representing as it does all departments of medical activity on this continent, could all these elements combine with greater expectation of evolving well rounded truth? It is my opinion that only in an association of this character, composed of a membership representing all phases of the body-medical, are the conditions fully secured for eliciting the broadest and clearest conceptions of the origin and natural history of disease, the tendencies that lead to it, and the measures needful to combat it.

With such an organization and such a membership as here suggested, this Section would be capable of advancing in its proper sphere of work purposely and consciously, and in the direction of humanity's greatest needs. We would then, by co-operative and predetermined action, be able to concentrate our thought and attention on the settlement of questions with respect to the etiology of certain diseases which now affect the highest functions of the nervous system.

It must be apparent to all, that as the future progress of mankind is of necessity along the lines of intellectual, moral, and spiritual attainments by the individual, and that such progress is possible only as the lower powers of our nature become subject to the higher and that, since these higher powers, as we are now constituted, reside in and have their expression and depend for their growth and development upon the activities of the nervous system, the most important problems involving human destiny are laid at the feet of the members of this Section for solution. Do we appreciate this? Do we recognize that it is from just such associations as this that mankind must receive the authoritative word declaring that the researches of science have completed the circle of the universe, and that she has clasped hands with revelation and joined with it in the utterance that intemperance, lust, licentiousness, self-seeking are degrading and debasing, blasting and dwarfing man's higher capacities for attainment, since they directly operate to the injury of his nervous organism, sapping its energies, and cramping its expanding powers; while on the contrary, temperance, purity, peace, and a continent life and conduct are evidence of a well balanced organism, and is in harmony with all law, human and divine.

These are, perhaps, far reaching conceptions of the growth which it is possible for us to attain. But I do not doubt that you concur with me in the opinion that this is the line of destiny and so of duty for neurology, and if so why waste time on less inspiring ideals and narrower conceptions of our function?

THE GROWTH OF COMMERCIALISM IN MEDICINE.

Read before the New York State Medical Association, Oct. 12, 1897.

BY JOHN SHRADY, M.D.

NEW YORK, N. Y.

In approaching this complex theme there are many besetments which involve more or less controversy. Indeed, there may be suspicions of ulterior motives for, mayhap, an untried form of ambuscade, since it is widely conceded that statecraft may even masquerade as diplomacy. At the outset, however, there need be a disclaimer to the effect that there is to be any eulogy of honesty in any form, lest it be set down as cant in favor of the code. The purpose, then, to be announced is that of self-examination as to whether or not there may not be some sins of our own which require the penitential tear.

We have heard not a little of the outrages that have been perpetrated against us in the way of non-recognition, or what hurts our pride not a little, of that indefinite something which we consent to call ingratitude. It is not to be gainsaid that self-esteem has been sorely wounded and that we have been balked in our efforts to hoard up the Klondike surface washings amid unesthetic surroundings of that barbaric simplicity which makes the want of probity fatal. That there have been hardships of no mean sort, the best panoplied of us stoutly maintain, for did not this very Borough of Manhattan begin the history of our profession with a petition for the monopoly of shaving?

But in those days of unusual sanitary conditions, when the ocean breezes did not sough against cloud-piercing towers, nor even whirl around the massive chair of a De Peyster in Bowling Green, there was little heed given to aught but pastoral joys or nocturnal frolics. There were then no heavy licenses for the sale of very small wares, and the little learning in vogue was easy of capture without question of its source. In very truth, the local color had then a sober tint and the picture a deep perspective. Since then, posterity has garnered the honest fruitage of not over-much labor, and has whet its appetite with the spiced offerings of the luxurious voluptuaries from every clime beneath the sun. But those halcyon days are gone, for the home of commerce has come where once were quaint cottages and low-bending trees. The counting-house has crowded away the May-pole, craft has displaced honesty, and the agent with his satchel of samples crosses the threshold with the ambling grace of Mephistopheles.

Now the schoolboy chuckles over his barters, for has he not early learned the power of wealth, and that money is current everywhere no matter how obtained! He has mastered business long before his prayers, and knows the biography of every merchant prince. How much, and how readily, is about his only ritual! If money comes not quickly what time can there be left to him for the wild carnival, which scatters what it can not use. Thus, with a starving soul he goes to the banquet of life. Gold, gold, but never the idolatry of the great, the unselfish and the true, is his prospective award. He bites the rosy apple but to fill his mouth with ashes. Aye, he is to be denied what he has won from the unsuspecting, for the irony of fate has long ago taught him that the calm of philosophy is not the accompaniment of the pride of possession. Still he ever searches for new fields, sterilized by auriferous deposits. Grown to manhood with the empty shout of public weal, he saps the foundations of public morals. But what boots it, he hugs his gatherings from which the eyes of angels are averted, and deludes himself into the belief that his conscience-smitten gift is charity. Now of this name, or *umbra nominis*, we have heard much. Business men claim to practice it with the click of machinery and vaunt it even in their supplications, while they wince at the voice of the whining beggar who plies his art upon their credulity with the saddest eyes. They keep a syndicate and the forms need no revision, for they have been passed upon by their board of managers, who investigate but seldom find their standard of poverty. What shall we say, is it high or low? With such seeming virtues romance endows the rosy-cheeked milkmaid, and to it the rollicking tourist scatters his coin. But here, in this boasted metropolis, the cajoler of the best traits of a common humanity skulks away with his rags and tatters from off the face of the cleanest streets. His picturesque outfit and beseeching face no longer linger to be beckoned into a studio as the model of a grand old Lazarus. Duty, the synonym of all that is obnoxious, is limited to the nickel-in-the-slot and the almoner is invisible. Faith is Charity—the sisters have the confusion of twins.

To this, we add without sarcasm, that we have no need to question the wisdom of business men, who have caught up with the nineteenth century in the rant of its worship. Is poverty, then, a sham only to be mitigated when abject? Is it never to be led by the gentle hand? Must starvation never be relieved except behind the poor-house door? Say not rather that charity ceases when regretted, and that the personal equation vanishes when there is too much organization. Justice at a lynching bee likewise is but a mockery when diffused through many hands gripping a long rope. Like the still remembered cartoon, thumbs point to the culprit with a "t'was him" around an unbroken circle.

When we physicians of the long ago, for the years flow swiftly, were wont to say but little of fees and chanced with the future for a livelihood, was there less recompense than now? Was there not more gratitude and more tender remembrance than in this age of rampant misgiving and shocked responsibilities? Did then the poor talk of our experiments or vivisections? Did we then chase the coin down to its covert? Rather did not the turmoils of conscience make us penitent and tender? Did we not point to the tribunal somewhere, only too glad that the deception was not ours and that we had missed the sickening potion of discovery?. Did we then care to cast the sinless stone? Did not our humility grow with our years, for was there not before us a shore bordering the misty sea of all knowledge?

Someone has defined charity to be the telling of A to B what C ought to give. This is undoubtedly the commercial custom. As professional men we have always been more practical with what few virtues we are supposed to possess. We scarcely protest with the hand outside of the pocket. Think all guilty until proven innocent, has never been our motto. In truth, have we ever been on the alert for "the little heaven below" which cash-in-hand is supposed to give? Knowing that we have more rights than we ever cared to claim, we have waived them for the sake of a swifter progress. We have turned from our ledgers to our books, from our regrets to our cases. Why should we bandy words with a chattering crowd, or carry our right of petition up to a legislative hall? Who cares for our woes, for have we not always been too proud to parade them? In the present drift toward paternalism we might even say with Emerson, we are only "bartering subsidies for privileges." Know you not that there was long a scribbled inscription in one of the rooms of Temple Bar, London, "Law is dear, but it is prime, it is prime." The price is high and the commodity invisible. The year between us and Santa Claus has ever been exceeding long and the gifts contemptible But then does the 'longshoreman get any more for the dripping body that he has fought to the dock? Does our lawyer friend ever forget to note an interview?

Let us indulge in a little introspection. Let us see if we have not ourselves fallen away from our high standards. Let us admit that we have adopted some of the formulas of trade, for what else can we say when such advice as, "You must make your market," is baldly flaunted with never a zest of Machiavelli, that all governments are liars. Let us refer to that other almost criminal insinuation, "Well, there are more ways than one," which is, oh, so well hammered into our ribs. Our love of greed has been stimulated by the rarity of exceptions, and a vendetta has been established for mutual extermination. There has been rife a persistent effort for undivided possession, for a kingdom without satraps, for a dogmatic isolation conjoined with a shameless effrontery. Covert arts have been in vogue to cut off the opportunities of the honest plodder, who is assigned the rôle of the unskilled workman for the chance of a minimum reward, while stupendous fees are deemed attainable by the merest clutching. All these, not with design, we admit, but still the consequences are not a whit less deplorable—aye, to the verge of abject degradation. But the great public has been enlightened by the usual slipshod methods, to-wit, with information on just enough to alarm their fears. To be sure, there has been no flagrant offense offered to the most exquisite taste, none of the nimble art of the street preacher balancing as wares the coarsest virtues on his finger tips, but still the suggestions are dire and exact. The rattle and clatter of the plates only tell of old tests and old escapes.

The journalist may have trimmed from the common heap, the jewel of modest merit, but the gravity of our doubts is most oppressive. His zeal for the public may have been of the "purest ray serene," but unfortunately there are many judgments at variance. He has his friends, too, who stoutly defend him against the charges of purloining microscopic slides, portraitures and photogravuric misfits for newspaper columns. Still he is persistently correct in his minature, but somewhat obscure in his statements of superb excellences. This editor of ours so loves to revel in surprises, so well uses the power of the press, and pirouettes so trippingly away from the latest scandal to the worship of the latest paragon. Thus jocularly do some men their duty regardless of the woes of their victims. But seriously, we would excuse such blunders, were they not so fatal to budding reputations. Yet these catastrophies may befall the humblest Fellow of our Association, even him, who storms over being found "among the distinguished persons present" and who is so vexed at the absurd praise, oh, so lavishly bestowed.

What an outrage upon a physician who simply tries to do his duty, just as does every other brother of the profession who seeks not his own but another's welfare. If he elects to mitigate an eulogy by a declaration of his merit (alas, far below the average), he is incontinently accused of an attempt to prolong a controversy for the sake of notoriety, and not at all in the interest of a nobler standard in his own calling. He has laid his tribute before a shrine and is therefore roundly denounced for keeping a mascot. Should he be convinced of the virtues of a mineral water, his jealous brethren accuse him of merely stringing his hard-earned honors after his name! But he has really been duped by an advertising agent, who has played upon his credulty. His simple scientific disposition has been made to subserve the ends of an enterprising manufacturer, who is exploiting his discoveries throughout the land. Even those references "by permission" on the cards of struggling nurses may have been an abuse of the best of natures. Alas, such is the enterprise of trade! Such are the indiscretions of our blatant admirers who keep not within the bounds of their own affairs!

It is just by such methods as these that civilization is retarded by the only "still small voice" that our too trusting consciences are made to hear. We can never be brought to understand why it is that the merchant from behind his bargain counter keeps forever giving out his malicious opinion that no physician can be made over into a business man, why our modes are held to be crude, the language of his science, jargon; for says the advertising expert, where is the art of not saying, where the non-obviousness of the delicate insinuation that our commodities are just a mite superior to those of our rivals? Have we done more than our duty to the public? Where are our arts of faint praise of possibilities? Where the long vista of years yet to come, where the negative yet to be developed and where the well-graced actor yet to enter? Sweet plaudits such as these says our man of a commercial emporium, may be cheaply had just at the cost of a quizzical shrug or a tone of sadness; if not thus won, why not be content with the "reading notice," stumbled on unawares and thus cheap at any price? That neighbor of yours in yonder palace, who stands up grandly in his pew and essays to deceive with pious interjections, has fared in his day and generation much better, for the wails of his victims possess the soft cadence of a longer distance; aye, just the width of the gulf between Dives and the poor man in Abraham's bosom. Still in the seesaw of an inevitable destiny the one as ever looks down and the other up. The one has a scowl, the other a smile; for joy has fled from one, but abided with the other. But let us not therefore refrain, for after all retribution may be only a myth! Fall down and worship, the wealth of the valley is yours.

What says the State—the state of all nations, grades, forms and conditions, which but enforces fealty to itself and jeopardizes naught for its own interests. It is not strictly charitable, but it suavely does the work of charity, without heed of the hardships or perils of the person. Aye, along its moving armies there ever rings out the hoarse high-pitched order: "Wounded to the rear." If it helps it is without coddling and without the soothing stroking of kinship, only as a conglomerate mass it moves and flounders; like the leviathan buffeting the waves it is merely powerful for displacement. On its day of danger it may call for levies, but the pay it gives is the sense of duty and a tinsel crown of martyrdom. It may have a thrift of its own, but has made no provision for the legacy after death. It talks of ignorance and vice, but not at all of misfortune, for with it a blunder is worse than a crime. It may fight, but seldom arbitrates, and when revolution or carnage comes it dies washing its hands with a supercilious curl of the lips. The prating is for justice, swift, stern and sweeping, not for mitigating mercy, charity or any other persuasive grace. Like the street gamin, it is disappointed that the patrol wagon holds only thieves instead of murderers, for the former may work out the charity won by their enterprise while the latter would have been chief in some grand lurid drama, with defiant and mock-heroic faces. This gamin of ours but wants the sensation, the curdling little red rivulet. He, too, needs the carnage that leads to glory, but never the glow of the fireside that beckons on the slumber of peace. Why then should we mix our appeals with clamor for the royalty of a meagre patronage or a short official life? Let us rather be dumb before our shearers that our submission may pass for stoicism, our self-conquest for grit. May we, too, not have honor for our scars?

That as a moiety of the community we have suffered in the financial depression of the past few years, none will have the temerity to deny. But acknowledgements are more or less painful. In a politico-economic sense, we have become versed in the maxims of supply and demand, we have heard much of over-production and have had many experiences of buying in the cheapest and selling in the dearest market. We have imbibed trades-union ideas, and have insisted on immediate and adequate recompense. We have catered to the prejudices of the dependent classes by informing them that our revenue was from the rich and that the surplus was cheerfully bestowed upon the unfortunate in lieu of fee-less skill. Why therefore should we complain if the much-talked-of gratitude was absorbed in the mere sense of a cancelled duty? If we referred our cases without demur to your hospital and dispensary, because our skill was far beyond the means of the applicant, why protest that damage came to our prestige? If we exalted the charity of our neighbor, why cavil if he received the credit? If we enhanced his reputation, why deprive him of the emoluments, be they what they may, if only such were the returns for his toil and trouble? Why not allow the wage we have scorned?

How few read the lesson of the right to give in the parable of the Prodigal, and how many waste their indignation upon him, who served his father, lo, these many years! The fault lies with a slinking away from our individual charities and a reference of what is our plain duty to a corporation or to the state itself. Both of which may relieve—be not startled by the harshness of the phrase—through motives of policy. In the squabbles of our childhood how soon we learned to conceal our grievances from our parents! How much more precious was the redress when the settlement was all our own! How much less the rancor when the skirmish was too brief to grow into a battle! How much happier when we had no grim judge to face whose regret was that the law provided insufficient punishment for the crime! Let us not, therefore, saddle our shortcomings upon those who bestow merely to escape importunity and appoint grand almoners because their sympathies are shocked at the mere sight of misery. Just so the brigands of old hoped to win eternal happiness by the pittance at the shrine. The self-tormenting saint, in his life-long practice of Samaritan virtues, erects a higher ideal and is much more sure of the hosannahs "to the good and faithful servant." What need, we ask, for that perpetual delegation of our very virtues along with our liberties to a hazy unification of a something we call power divorced from wrong? Is it any more distinct and select than the hug of the crowd?

As a profession, too, we have allowed ourselves to be deceived by over-statements of success on the part of those who have won the popular favor. We may even have enhanced our own merits by well-directed self-laudations, which in the young pass for enthusiasm; in the old for candor. While the merchant has speculated with capital we have sported with reputations. What have we gained; only an ownership insignificant and transient. Beginning a career when the votary of commerce is arranging for retirement, we find that our attainments do not advance us beyond the rank and file, whom we have been taught were created to furnish us with cases, to them incomprehensible. Gathered up by the wayside and hurried into the institutions of learning, we have been taught the progressive glories of medicine, and especially that all of life was antisepsis. We have found that, after an awakening from our disillusions, our preparations have been mainly for a sham battle and that Jupiter, after dividing with the warrior and the merchant, allows the poet the whole world just because he has divorced it from its most desirable treasures. The ample room above, we have carried as a tradition, some of us from the kindergarten, and have striven as well to escape from the multitude, among whom statures are dwarfed and visions bereft of their tawdry mockeries. We soar, but soon strike the bars of the cage.

Somehow the self-deceptions of our commercial part do not beguile us, inasmuch as in our investigations we become annoyed, like John Hunter, by the quest after the guinea and envy the pipe and simple needs of some Virchow, poring over the deepest problems of life. To us in what should be the valley of content fit for a Rasselas, the luring invitation of the mountain top, upon which a castle may be built, has as ever withstood the flattery of our prayers. Let us not look upon legislation as a panacea or seek to abolish hospitals as a lesser remedy for our grievances. Let us not stultify ourselves by demolishing what for centuries we have been erecting. Much of our best work has been within hospital walls, and few would willingly part with the memories of our first "God bless you." We have been disappointed, it is true, but because of too much expectation and the absence of cringing appeals. How could we hope from the law but an extension of advantages and an enlargement of a community to which none of us can be admitted to full membership. How can we be exempted from competition by legal enactments! Still as we are expected no longer to pass upon questions, as jurors, we may become useful as signers of petitions and as a colleague expressed it, "practice medicine as a blind." We have not been the only ones who have worked outside of our proper spheres. Judicious investments rather than accumulated earnings are made by one of the English journals to explain the rather insignificant fortunes left by practitioners of more than national fame. With our diplomas we carried off the vows of the clergy, of whom we were once an integral part. We have always preached philanthropy, let us still defend the text and cease our strictures upon flaws in doctrine. Let us learn from the multitude how much may be done with a little.

Many are the arts of trade and often have we, as a profession, essayed to adopt them, but the glamor has not strictly deceived and our mimicry has been much too awkward. The intellect of the many headed we have already learned is by no means dull and the ways of the charlatan are soon divined. Our dignity is not of that order which prompts to stuff the bosom and to ride erect with a long curved sword for the homage of an hour. Why not, says our lawyer, the fee is large and a portion may buy a home? Somehow we have come to dread the "nevermore" of the croaking raven and even to belittle our services. The salesman of glib tongue, the financier of plastic conscience and the inventor of ready brain emerge from the mine far richer than we, whose competitors are too apt to be of our own household. Our pay is the bulky coin of the iron age, much too heavy for the convenience of commerce. Nay, further, it is our born prerogative to serve our fellows, to defer their doom by kind offices and select none even for the value of their lives. The tradesman, the landlord and all who gain a livlihood out of the necessities of others, may flourish under the ægis of the law, but preferably not ourselves, for legislation knows but one remedy, that of a different and leveling method. It takes care to spread only on the thin slice. Much toil and much self-conquest is the screed of our book of fate. Let us read it with a contrite submission and like the beggar in the market place wait until the pittance grows into an investment.

It is not for us to waste life in banquet halls with well-rehearsed laughter and invite placid slumber to the sound of the lute. Reverently, our kingdom is not of this world, for though art may make the Sybarite, science never, and "then too," rejoins the cynic, "there may be no more sleep upon a bed of down than upon a pallet of straw, no more content with millions than the frugal meal with much liberty." "Anyhow," continues a modern Diogenes, "we could much better enjoy our outing were it not for that ponderous book of questions so pompously borne in our rear."

THE PATHOGENESIS OF LOCOMOTOR ATAXIA.

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The gradual attainment of our present knowledge of the disease known as locomotor ataxia, is one of the fascinating stories of medicine. While it is undoubtedly true, as one writer says, that it is the most common and the best known today of all the nervous affections, and while it is also true that the advances made toward the recent conception of its etiology and pathology have within the last few years been something marvelous, it is nevertheless a fact that after all we have only entered upon its elucidation. Many of the newer discoveries have only added to the complexity of our knowledge. We are almost as much in the dark as ever in regard to the real cause or causes of the trouble, nor have we found as yet any sufficient reason why those causes should exert a selective action upon special nerve areas. One comprehensive definition has it that locomotor ataxia is a degenerative sclerosis of the sensory apparatus, involving this side of the nervous system anywhere from periphery to cortex. But why should the sensory elements be the subject of deleterious influences in this disease more than the motor elements which lie in such close proximity to them, and which so far as we can see are histologically identical? There must be a reason for this, and it is the object of pathology to discover it. In regard to the differences between sensory and motor elements, anatomy is silent and physiology only declares that one is centripetal and the other is centrifugal in function. Even should some agreement be arrived at in regard to the character of the lesion in all cases, whether it is inflammatory, degenerative, interstitial or parenchymatous; and even should a happy conclusion be reached in regard to the much vexed question of etiology, whether it is syphilitic, traumatic, hereditary, sexual, etc., the all important contention still remains as to why these causes should always produce the degeneration, the sclerosis or the inflammation of the sensory elements as they always do in locomotor ataxia. To be sure they often give rise to similar lesions in other parts of the nervous system, but still they must possess some special influence in locomotor ataxia, since this disease is so much more common than all the other nervous diseases. When one attempts to extensively examine the literature on this subject he is soon overwhelmed with confusion; for he observes that almost every writer promulgates a theory of his own, based largely upon facts and observations interpreted in accordance with his own mental bias and limited experience.

Consider for a moment the etiology of the disease. Syphilis has been assigned as a cause of locomotor ataxia in from 5 to 90 per cent. of all cases, and by equally competent authorities. When in 1876 Fournier first called attention to the wide association of syphilis and tabes, he was severely criticized because his field of observation was chiefly among syphilitics. But Duchenne, who first named and described the disease in 1864, so that it was thereafter given a place by itself in the text-books, indicated his suspicions of its specific nature by urging the efficacy of the iodid of potash in its treatment. Testimony has been steadily accumulating in favor of the tremendous influence of syphilis as a causative factor until at the present time there is not wanting high authority for the assertion that locomotor ataxia is nothing more nor less than a sequel of lues, and that the cachexia venerea constitutes the background whereon all cases are projected, no matter what may be the exciting cause that starts them into activity.

Möbius of Leipzig declares that tabes is a syphilitic disease. Darkschewitsch of Kazan argues that syphilis must be considered as the cause of the disease because the specific peripheral neuritis (toxic polyneuritis) is the primary trouble, the cord lesion being merely a subsequent secondary manifestation. Blathner of Berlin, points out a sort of crossed action of syphilis in tabes, as revealed in the not infrequent insufficiency of the aortic valves. It is to be noted, however, that though Gowers states that valvular heart disease "is the most important" complication of tabes outside of the nervous system, it has been shown, after a careful study of the question by Bailey, that "while organic cardiac changes occur in a small proportion of cases, their occurrence is not more common in tabes than in any other disease of a senile character." Minor of Moscow, brings forth apparently some strong proof of the syphilitic origin of locomotor ataxia upon ethnographic grounds. Out of a series of 1642 cases of nervous diseases of all kinds among the native Russians, 496 were males and 264 females, while among the Jews, 449 were males and 433 females. Of the male Russians, 25 per cent. were syphilitic; of the females, 11.4 per cent. Of the male Jews, on the other hand, only 7 per cent. were syphilitic, while of the females only 1.5 per cent. had had syphilis. It is strikingly significant, therefore as bearing upon the question of the syphilitic origin of tabes, to find that the latter disease is five times more frequent among the Russians than among the Jews. But note in connection with this the equally significant fact, long ago pointed out by Grimm, that syphilis is particularly rife in Japan, while tabes is exceedingly rare.

Of 1016 optic nerve atrophies examined by Galezowski, 800 were found in tabetic subjects, and more than half of these were syphilitic. In Schwarz's tabulated list of thirty cases of tabes, all were syphilitic. Germeix insists that syphilis is the cause of locomotor ataxia. Strümpell holds that all cases are due to syphilis, the lesion not being, however, strictly syphilitic, but rather a metamorphosis brought about by the slow selective action of the toxin. Vermel voices the same opinion, as likewise does Raymond of Paris. Erb's recent list of 500 cases of tabes admitted syphilis in 89.2 per cent., but Erb recognizes the power of other causes acting in conjunction with syphilis, for he enumerates a long and varied list of such causes. Specific disease was found to have been present in 90 per cent. of the 400 cases of Gajkiewicz of Warsaw. Marie of Paris, a pupil of Charcot. who was notoriously conservative in regard to the influence of syphilis, has lately declared that syphilis is practically the only cause of tabes. Truly does experience teach men different lessons!

One fact is certain, however, that syphilis has not yet been established as the only cause of locomotor ataxia. Many advocates of the specific etiology of the disease are forced to admit that there are some cases in which syphilis does not seem to play a rôle. Soon after Fournier had announced his radical views, Teissier of Lyon, took the stand that lues was not a direct, competent cause of posterior spinal sclerosis, though he ranked it as a predisposing cause along with gout, rheumatism, alcoholism, etc. He based his views upon some thirty-five cases, of which only thirteen were positively syphilitic. In 1887 Karger of Berlin, reported that 53 per cent. of 117 cases of tabes were syphilitic. In the same year Nägeli of Zurich studied a list of 1403 cases, and found that 46.1 per cent. were positively syphilitic, while 60.6 per cent. were merely suspiciously so. Gerlach observed among 156 cases of tabes, that 56.25 per cent. of the men and 66.7 per cent. of the women were the victims of specific disease. In contrast with Gerlach's observation it is interesting to note that Andronico examined "great numbers" of prostitutes, of which many must doubtless have had syphilis, but found that locomotor ataxia was exceedingly rare among them. It is currently stated that tabes affects men in proportion to women as ten to one, and all because women are less exposed to the same deleterious influences that men are. But if syphilis be the direct cause of tabes the ratio, it seems, ought to be less that ten to one, even taking into consideration the well known fact that syphilis is not so disastrous to the female as to the male. In six of Andronico's cases, all of which were women, only one had had syphilis. At all events, this disparity between men and women in regard to syphilis and its relation to locomotor ataxia, would seem to indicate that syphilis is not a direct cause of the latter disease, but rather a predisposing or diathetic cause; and that the singular immunity of women is due to their comparative freedom from the direct, exciting causes such as cold, damp, muscular exertion, etc.

That syphilis can not be the only cause of locomotor ataxia is conclusively shown by the case of Leloir, which became a victim of the spinal disease in 1878, and not until five years later, in 1883, was afflicted with syphilis. Bernhardt and Guelliot have both reported cases of tabes, free from specific disease, in which the excessive muscular exertion of running a sewing machine seems to have been the only cause.

Lagondaky estimates that only about 42 per cent. of tabetics have been the victims of syphilis. Kuhn, of the Berlin Charity Hospital, found that syphilis was present positively in only about 37 per cent. of the tabetics, probably in 31, and possibly in 7 per cent. In 225 cases of the disease, Pitres of Bordeaux could only prove that 55 per cent. of them had been syphilitic. Since there were other causes in operation at the same time, such as heredity, alcoholism, sexual excesses, etc., the syphilitic cases, pure and simple, were reduced to 22.33 per cent. Leyden is still of the opinion that 20 per cent. represents a fair estimate in regard to the number of cases of tabes caused by syphilis. Of 108 cases quoted by Storbeck, 20.4 per cent. were syphilitic, and 58.3 per cent. were non-syphilitic. After all, it would seem as Cardarelli says, that the effect of syphilis in the production of locomotor ataxia has been greatly overestimated.

In a certain percentage of cases the syphilitic toxin may so impair the nervous tissues as to cause them, under some special stimulation, to undergo degeneration and sclerosis. There must be some exciting cause, some determining cause to act upon the general cachectic state produced by the syphilitic toxin, or else it will be incumbent upon the advocates of the syphilitic etiology, such as Marie, to explain, first, why all or at least a larger percentage of syphilitics do not contract posterior spinal sclerosis, and secondly, why this universal wide-spread toxin floating through the blood, selects special parts of the nervous system whereon to expend its force. They must demonstrate a selective power in the toxin or a special susceptibility in the sensory apparatus. Until such an explanation is forthcoming other causes must also be invoked. Among these there have been enumerated heredity, age, sex, cold and damp, sexual excesses, trauma, alcoholism, ergotism, arsenicism, environment and other spinal diseases.

Let us now look at the question from the pathologic side. Locomotor ataxia is recognized today as a much more extensive disease than it was for a long time supposed to be, and from various indications it appears that the distribution of its lesion will be found in the future to be wider than the facts now warrant us in accepting. Indeed, the implication of many of the motor nerves and tracts would seem to be more than a mere extension of the pathologic process from the contiguous sensory structures. Instead of the disease being a purely systematic one, it begins to resemble an extensive form of multiple sclerosis. The names posterior spinal sclerosis and tabes dorsalis are no longer accurate, for the posterior columns are not the only parts of the sensory cord that are affected, while the process is no longer considered an ordinary form of sclerosis; nor is the disease a genuine tabes, confined solely to the dorsal region.

Without reviewing the development of our knowledge in regard to the parts of the nervous system involved in locomotor ataxia I will simply indicate those that are now known to be affected. They are the columns of Goll and Burdach, including the posterior root-zones of Charcot; the direct cerebellar tracts of Flechsig, which many think are the real cause for the ataxia by cutting off the transmission of sensory impressions to the cerebellum, the organ of co-ordination; the antero-lateral columns of Gowers; the columns of Clarke; and the Spitzka-Lissauer tracts near the circumference of the cord on either side of the posterior roots. Structures outside of the cord that have been found diseased, are the posterior spinal nerve-roots, many of the peripheral sensory nerves, many of the encephalic nerves like the optic, trigeminus, abducens, oculo-motor, auditory and spinal accessory, and parts of the cerebral cortex.

Of all the extra-spinal lesions, those of the optic and other ocular nerves are the commonest. Out of 1016 cases of optic nerve atrophy observed by Galezowski, 800 were tabetic. The same author noted as a significant prodromic sign of locomotor ataxia, unilateral paralysis of the muscles of accommodation associated with anesthesia of the corresponding periorbital region, unaccompanied by mydriasis. Kayer of Berlin, found impairment of vision in 35 per cent. of 117 cases of locomotor ataxia in Mendel's clinic, the Argyll-Robertson pupil occurring in 66 per cent. Any number of cases might be cited, all manifesting an early and significant implication of the ocular nerves. The organ of sight, however does not exhaust all the cranial nerve palsies, and Erb says these cephalic symptoms are present in one-half of all cases of tabes, and are persistent in from one-third to one-sixth.

The auditory apparatus comes in for its share of trouble. In the examination of some forty cases, Marini found that only 17.5 per cent. had normal hearing, while 29 per cent. had some affection of the auditory apparatus. Of the latter, 10 per cent. had middle ear disease, and 37.5 per cent. had undoubted internal ear disease, a condition which was also suspected of the remaining cases. Morpurgo observed that forty-three out of fifty-three cases of tabes had some auditory trouble. Admitting that some of these statistics may be open to question, it is none the less true that impairment of hearing, due to true nerve-deafness, as well as to trophic disturbances in the auditory apparatus, is not an uncommon symptom of locomotor ataxia.

The vagus accessorius and glosso-pharyngeal (Oppenheim) have been found degenerated, along with the extension of the spinal lesion up into the corpora restiformia. Many of the bulbar symptoms have been attributed to disease of the central nuclei, but after a careful investigation Van Gieson concludes that the various crises are really due to peripheral and not to central lesions. He reports a case in which a painstaking autopsy revealed, besides the usual characteristic spinal lesions of tabes, a bilateral chronic diffuse neuritis of the vagus and spinal accessory roots, but without involvement of the nuclei of those nerves.

Ever since Déjerine in 1883 described his case of locomotor ataxia in which there was only a general peripheral neuritis, and in which the cord elements and posterior roots were discovered to be normal, the lesions of the peripheral nerves, with or without accompanying spinal cord lesions, have attracted more and more attention until the extreme view has been advanced (Déjerine) that locomotor ataxia is, after all, a disease primarily of the peripheral nerves, a *neuro-tabes périphérique*. In his own words, Déjerine says that tabes is beginning to present more and more the appearance of a peripheral disease of the sensory and motor, and nerves of special sensation. According to this idea the medullary lesions are the result of a secondary degeneration, and the entire nervous affection is the product of a toxin in the blood.

Leyden, Redlich, Déjerine and Marie have all demonstrated that the primary trouble is in the posterior nerve-roots in their intra-medullary course. Marie sums up these views thus: "The changes found in the tabetic spinal cord are not the results of a primary systematic myelopathy. They are the expression of a progressive degeneration of the posterior root fibers. These medullary changes in tabes occur in segments, while each diseased posterior root furnishes a new contingent of degenerated fibers to the spinal cord." The question which is still unsolved is whether the origin of the degenerative process is below or above the posterior ganglion. The cause of the degeneration in the posterior roots is supposed by Marie to be a disease of the spinal ganglion cells as well as of the peripheral ganglia. Locomotor ataxia therefore resolves itself primarily into a ganglionic disease induced by a virus. Wallenberg of Halle, and Ransom give strong support to these views of Marie from postmortem examinations made by themselves. Blocq of Paris adds his confirmation also, and furthermore shows the developmental character of the degeneration of the medial portions of the posterior roots, those portions which are the first to become diseased consisting of thicker fibers and developing very early in embryonic life (from the seventh to the eighth month).

Whether this ganglionic theory be wholly true or not, there must be some place of beginning for the disease process. The usual site of this beginning, and the reason for the disease commencing at this site have been the inspiration of many theories and much controversy. That the extension of the disease is an upward degeneration will not, I presume, be disputed by anyone; for clinical as well as pathologic observation prove it. There is a gradual centripetal disappearance of the axis cylinders and medullary sheaths (Adamkiewics) with accompanying neurogliar changes (Schiefferdecker and Homén). It may not be untrue, as some more recent writers have stated, that the progressive scleroses of the spinal tracts are, to a certain extent, primarily attributable to an overgrowth of the neuroglia originating in the epiblast, as well as of the connective tissue derived from the mesoblast; so that as Dana says, we may have to speak of the process as a posterior spinal fibrio-gliosis. At this point the well known conclusions of Déjerine and Letulle are appropriately recalled. The neurogliar type of sclerosis, according to these investigations, is characteristic of Friedreich's disease, and we can therefore understand the hereditary nature of this form of locomotor ataxia, since it has been proved that the neuroglia is histologically of ectodermic origin and not meso-dermic, as is the associated connective tissue. In the neurogliar sclerosis of Friedreich's disease the defect is an embryologic one and not vascular, as it is in the mixed connective tissue type of sclerosis, characteristic of multiple sclerosis, diffuse sclerosis and tabes. The one is an inherited defect, the other an acquired form.

Auscher corroborates these views from an autopsy. According to Tellinek of Vienna, the lesions of the cerebellum found in six cases of tabes, consisted of atrophy of the nerve cells of the dentate body and degeneration of the medullary fibers of the lobules, which to some extent would seem to indicate the parenchymatous nature of the pathologic process.

From past observations the most frequent focus from which the lesions of locomotor ataxia took their start seemed to be in the dorso-lumbar region. Many have been the reasons given to account for this. Long ago, when the lesion was supposed to be of an inflammatory nature (Vulpian, Charcot, Erb), the gravitation and stagnation of the circulation in this part of the cord were advanced as sufficient reasons. Then when sexual excesses were considered as a potent cause of the disease instead of an unfortunate early symptom, their disturbing influence upon the local circulation and over-excitation with exhaustion of the genito-spinal centers were blamed for the trouble starting in this region. The vasomotor theory of Porter based upon organic alterations in the anterior and posterior spinal blood vessels, with consequent disturbance of the local nutrition was certainly ingenious, but hardly tenable in view of the wide extent of the lesion and the similar vascular changes in parts of the nervous system not subject to sclerosis and degeneration. The same criticism applies to Spitzka's explanation in regard to the thickly interwoven minute fibrous network in the dorso-lumbar part of Burdach's columns, as being the reason for the disease originating there. Not even the views of Déjerine, founded upon the existence of a local meningitis and neuritis, nor those of Obersteiner and Redlich, based upon the injury supposed to be caused to the posterior nerve roots, by a syphilitic inflammation and contraction of the membranes of the cord surrounding the roots at their exit, are entirely satisfactory. First, locomotor ataxia is a most extensive disease, and not all cases, by a large majority, begin in the dorso-lumbar, or any other region of the cord; and second, if these various local conditions, invoked as an explanation of the origin of the disease in the dorso-lumbar part of the cord be entirely adequate, why do the same conditions not account for those forms of locomotor ataxia that start elsewhere in the cerebro-spinal system, than in the dorso-lumbar region? For example, how can general organic thickening of the vascular walls throughout the body, or local meningitis determine all of the many varied forms of tabes? How can a peculiar histologic network in a certain part of the cord account for cases that ofttimes seem to originate in peripheral nerves? How can gravitation and local stasis be made to answer for such varieties as cervical tabes? For the frequent forms of tabes that have the origin of their lesion in the dorso-lumbar part of the cord, almost any one of these various explanations would answer; but for the other and irregular forms, they are all untenable. In science a theory is not acceptable unless it is capable of being applied to every individual instance of a series. It does not seem to me that any one of these explanations, applicable as they may be for the dorso-lumbar forms of locomotor ataxia, can be applied in those not uncommon instances (Galezowski and others) in which the ocular so long precede the spinal symptoms; in those (Martins, Déjerine, Finny, Weir Mitchell) in which the cervical symptoms predominate; in those (Trousseau, Déjerine, Gubler, Luys) in which only the peripheral nerves seem to be affected. Indeed, no sufficient explanation for the origin of all cases of locomotor ataxia has yet been proposed. Many of the exciting causes such as trauma, local meningitis and sexual excesses operating in conjunction with a neurotic cachexia do determine the original site of the disease process; but for those insidious, apparently spontaneous cases starting from merely a general cachectic condition of the nervous system, there seems to be no explanation. For the selective implication of the sensory elements in these latter cases it appears very much as though we will have to consider some peculiar cellular structure or alteration or differentiation, some histologic peculiarity in the sensory elements themselves as the real determining cause.

As a result of some embryologic investigations made by Trepinski, under the direction of Flechsig, the latter declares that not only in the posterior columns but in the posterior nerve-roots as well, the parts that undergo degeneration first in tabes correspond to certain definite embryologic tracts. These tracts are the so-called middle root zones and median zone of the posterior columns. The other fibers from the middle root zone, which in the embryo appear later and seem to go to the columns of Goll, remain intact in tabes. Flechsig's entire article is full of suggestions and seem to point in the right direction for a solution of the question as to the selective action of the cause or causes of locomotor ataxia. Blocq confirms the origin of these tabetic degenerations in certain tracts of the posterior roots, which are developed in the embryo earlier than are some of the adjoining tracts. Can any such differentiation be found between the sensory and motor tracts as to enable us to comprehend why, with such general causes as a blood dyscrasia, locomotor ataxia should always be a disease of the sensory apparatus? It certainly would be a magnificent attainment if we could fully and positively assert as Leyden does, quoted by Obersteiner, that locomotor ataxia is "a chronic atrophic degeneration process of the spinal cord, originating in the posterior roots and connecting itself with distinct embryologic fiber symptoms."

BIBLIOGRAPHY.

Jones: Northwestern Lancet, 1896, xvi.
Marechal: Leçons sur les Maladies Nerveuses, 1ère partie, Brux., 1896.
Weidner: American Therapist, 1896–97, v.
Lebon: Contribution à létude des myélites infect. expérimentales, Paris, 1896.
Lamy: Compt. rendu soc. de biol., Paris, 1896, 10 e. iii.
Lanny: Tribune Médicale, Paris, 1897, 2. s. xxix.
de Massary: Le Tabes Dorsalis, Paris, 1896. G. Carré.
Barie: Le cœur chez les tabétiques. Rev. gén. de Clin. et de Thérap., Paris, 1896, x.
Drennen: Syphilis as cause, etc., Alienist and Neurol., St. Louis, 1896, xvii.
Drennen: Cleveland Med. Gazette, 1896–7, xii.
Meirowitz: Alcoholism as Cause, Post-Graduate, N. Y., 1896, xi
Raymond: Progrès Méd., Paris, 1896, 3e s. iii.
Pierre: Jour. de la Santé, Paris, 1895, xii.
Bailey: Jour. of Nerv. and Ment. Diseases, N. Y., 1895, xxii.
Diller: Medical Record, N. Y., 1895, xlviii.
Albany Med. Ann., 1895, xvi.
Diller: Westminster Hosp. Reports, London, 1895, ix.
Möbins: Neurologische Beiträge, Leipzig, No. 3, 95.
Darkschewitsch: La Médecine Moderne, Paris, Dec., 1894.
Blathner: Inaugural Dissert., Berlin, 1895.
Miuor of Noscow: Neurologische Centralblatt, Leipzig, July, 1892.
Grimm: Internat. Klinische Rundschau, Vienna, Aug., 1894.
Teissier: La Province Med., 1887.
Karger: Inaugural Dissert., Berlin, 1887.
Nägeli: Inaugural Dissert., Zurich, 1887.
Hutchinson: Med. Press and Circular, London, 1887.
Galezowski: La Semaine Médicale, 1888.
Andronico: Fortschritte der Medicin, Jan., 1888.
Schwarz: St. Petersburger Medicin. Wochenschrift, 1889.
Germeix: Arch. de Médecine et de Phar. Militaires, Jan., 1889.
Strümpell: Münchener Medicin. Wochenschrift, Munich, Sept., 1890.
Vermel: Le Progrès Médical, Paris, Feb., 1890.
Leloir: Journal de Médecine de Paris, Dec., 1889.
Erb: London Practitioner, London, Sept., 1891.
Gerlach: Fortschritte der Medicin, Berlin, Feb., 1891.
Bernhardt: Neurologisches Centralblatt, Leipzig, Dec., 1890.
Gnelliot: L'Union Médicale, Paris, No. 2–4, 1882.
Raymond: Le Progrès Médicale, Paris, June, 1892.
Gajkiewicz: Syphilis du Système Nerveux, Paris, 1892.
Marie: Leçons sur les Maladies de la Moelle, Paris, 1892.
Dana: New York Medical Journal, Jan. 9, 1892.
Lagoudaky: Le Bulletin Médical, Paris, July, 1894.
Kuhn: Inaugural Dissert., Berlin, 1894.
Pitres: Quoted by Berens in Thesis, London Lancet, April 13, 1895.
Leyden: Quoted by Storbeck in his Inaugural Dissertation, Berlin, 1895.
Cardarelli: Gazzetta degli Ospitali, Naples, 1895.
Grasset: Sajous' Annual, 1889, Vol. ii, p. A 117.
Fagge: Practice of Medicine.
Bramwell: Diseases of the Spinal Cord.
Déjerine: Arch. de Physiologie, 1884.
Flint: Practice of Medicine.
Bartholow: Practice of Medicine.
Ranney: Lectures on Nervous Diseases.
Ranney: Applied Anatomy of the Nervous System.
Fournier: Ataxie Locomotrice, 1879.
Gaskell: Journal of Physiology, vii, p. 1.
Mettler: On the Nature of Locomotor Ataxia, Jour. of American Med. Asso., 1894.
Mettler: Is Locomotor Ataxia a Constitutional Disease Primarily, Chicago Med. Recorder, 1892.
Hadden: Brain, Oct., 1888.
Homén: Contribution Expériment. à la Path. de la Moelle Epinière, Helsingfors, 1885.
Brissaud: Leçons sur les Maladies Nerveuses, Paris, 1895.
Tooth: St. Bartholomew's Hosp. Reports, v. xxi.
Spitzka: Alienist and Neurol., 1885.
Spitzka: Pepper's System of Medicine.
Gowers: Diseases of the Nervous System.

Minor: Arch. de Neurologie. March, 1889.
Langley: Brain. April, 1885.
Sherrington: Brain, Oct., 1886.
Prince: Jour. of Nervous and Ment. Dis., N. Y., Feb., 1895.
Obersteiner and Redlich: Arbit. d. Inst. f. Anat. u. Phys. d. Centralnervensystems, Vienna, 1895 B.
Rosenblatt: Inaugural Dissert., Berlin, 1893.
Tellinek: Deutsche Med. Zeit., Berlin, March, 1894.
Bailey: Jour. of Nerv. and Ment. Dis., N. Y., May, 1895.
Gray: Nervous and Mental Diseases. Phila., 1893.
Hammond: Diseases of the Nervous System, N. Y., 1891.
Ziemssen's: Cyclopædia of Medicine, N. Y., 1878.
Osler: Practice of Medicine, N. Y., 1892.
Hamilton: Nervous Diseases. Phila., 1881.
Roberts: Theory and Practice of Medicine. Phila., 1894.
Topinard: De L'Ataxie Locomotrice, Paris, 1864.
Kayer: Inaugural Dissert., Berlin, 1887.
Marini: Arch. für Psychiatrie und Nervenkrankheiten, Berlin, 3, 21, H. 1.
Morpurgo: L'Union Médicale, Paris, July 3, 1890.
Oppenheim: Berlin, Klinische Wochenschrift, 1888, No. 20.
Van Gieson: Jour. of Nervous and Ment. Dis., N. Y., July, 1890.
Martins: Deutsche Medizinal-Zeitung, No. 7, 1888.
Déjerine: Arch. de Physiologie, Paris, 1888.
Finny: London Lancet. Aug. 11, 1888.
Weir Mitchell: Jour. of Nerv. and Ment. Dis., April, 1888.
Déjerine: La Médecine Moderne, Paris. Mar. 20, 1890.
Flechsig: Neurologische Centralblatt, Leipzig, Jan. 15, 1890.
Déjerine and Letulle: La Semaine Méd., Paris, Mar. 12, 1890.
Auscher: La Semaine Méd., July 30, 1890.
Marie: Leçons sur les Mal. de la Moelle, Paris.
Redlich: Psychiatrische Jahrbücher, v. 11.
Déjerine: La Semaine Méd., Paris, Dec. 14, 1892.
Marie: Le Progrès Méd., Paris, Dec. 24, 1892.
Wallenberg: Arch. f. Psychiatrie u. Nerven, Berlin, v. 24. 1892.
Ransom: British Medical Journal, London, v. 2, 1892.
Blocq: Gazette Heb. de Méd. et de Chir., Paris, Mar., 1892.
Obersteiner: Quoting Leyden in Sajous' Annual. 1893, Vol. 11, p. B. 33.

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A STUDY OF RETRO-PERITONEAL NEOPLASMS WITH SPECIAL REFERENCE TO DIAGNOSIS.

Read before the Southern Surgical and Gynecological Association at St. Louis, Mo.

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Definition.—For the purpose of my paper I accept the limitation suggested by Mr. Lockwood for retro-peritoneal neoplasms. The term implies a solid or cystic tumor growing behind the peritoneum, into its folds and not connected with any of the great retro-peritoneal organs. So we at once eliminate from our consideration tumors of the kidneys, pancreas, uterus and so-called broad ligament ovarian cysts. Neoplasms connected with any of the retro-peritoneal viscera usually present sufficient evidence in their history, symptoms and physical signs to enable us to ascribe their site of origin.

Origin.—Surgeons are not very careful in determining at the time of operation the true origin of the tumor with which they are dealing. The spirit of the pathologist is for the time eclipsed by the surgical emergencies. Therefore, I feel safe in assuming that many retro-peritoneal neoplasms have been encountered, the surgeon, recognizing the inoperable character of the case or awed by the apparent insurmountable difficulties, abandons the attack and consigns the patient and the diagnosis to oblivion. The structures involved primarily in these growths are the retro-peritoneal cellular and fascial tissue, retro-peritoneal and mesenteric glands, the sheaths of the great blood vessels and the vertebræ.

Pathology.—The type of tumor usually encountered in the retro-peritoneal space belongs to the connective tissue group. A careful study of these cases shows that they are of a mixed variety, the predominating type being sarcoma and lipoma, occasionally fibroma and myxoma are seen. An analysis of the twenty cases of solid retro-peritoneal tumors collected by Rogowski showed sarcomatous tissue in every one.

The peculiarity of retro-peritoneal sarcomata is that they are encapsulated. According to Mr. Cripps, they do not recur when removed. From a careful investigation of the literature on this subject I think the speaker was safe in making this assertion inasmuch as about 95 per cent. of the patients die from the operation or before it.

The predominating microscope picture is generally of the spindle cell sarcoma, yet in literature we see such descriptive terms as myxo-sarcoma, lipo-sarcoma, fibro-cysto-sarcoma, etc. Metastasis occurs in about one-half the cases, the liver, lungs and mesenteric glands being the parts involved.

Frequency.—There seems to be a general understanding among surgeons that these tumors are so rare that they are scarcely worth special study, and this is borne out somewhat by Mr. Lockwood, who says that no specimen of retro-peritoneal sarcoma has been exhibited in the Obstetrical and Pathological Society of London, and prior to 1895 the Medical Society of London had no opportunity of discussing this peculiar pathology, yet in 1889 Rogowski was able to collect twenty cases. In a recent discussion in the Royal Medical and Chirurgical Society of London, Mr. Shield reports a very instructive case of retro-peritoneal sarcoma and from the limited discussion that it elicited one would infer that the members were quite unfamiliar with the subject.

Age.—They occur after maturity, from 28 to 59 years. Mudd's patient, the oldest on record was 71 years. In one case reported by Joseph Austein, the patient was a female 4 years of age.

Sex.—These growths occur alike in both sexes.

Duration.—Duration of life history of retro-peritoneal tumors is usually about six months, though some cases have lasted for years, but usually when the tumor has existed for so long a time the original growth was some form of typical neoplasm and sarcomatous change engrafted upon it. Thus in Waldeyer's case in which the tumor weighed sixty-three pounds, there was some history of abdominal tumor for several years; the microscopic examination showed it to be a lipo-myxo-sarcoma.

Causation.—There is no recognized cause for these growths, yet in some cases the malignant growth appears as secondary to some local injury or suppuration. Rogowski reports a case of Neumann in which tubercular abscesses occurred some ten years before the appearance of a sarcomatous tumor at the site of suppuration. There has been some effort to assign these growths to specific origin, yet we would scarcely expect a gumma in the loose retro-peritoneal tissue without its occurrence in other organs.

Diagnosis.—The difficulty that surrounds the differential diagnosis of abdominal swellings is notorious, and a solid growth that can not be attributed to any of the great organs should at least arouse suspicion. Clearly it is of the greatest importance that we should learn to diagnose these retro-peritoneal tumors before they have seriously affected the health of the patient, acquired such universal attachments, and distorted the abdominal viscera. And it appears that the diagnosis would be much easier in the early stage if the investigation is made under anesthesia.

Retro-peritoneal tumors possess certain well marked characteristics not found in primary intra-abdominal neoplasms. The latter originate primarily between the duplications of the peritoneum, are attached to the organs from which they spring and have their attachment between the intestines and pelvic cavity, while retro-peritoneal tumors "originate in the retro-peritoneal space and as they develop they encroach upon the peritoneal cavity, and push the organs contained therein either forward or to the side, in a most typical manner." (Witzel).

General condition.—A patient bearing a retro-peritoneal tumor exhibits pronounced constitutional disturbance. The usual large size of the tumor and its location, give rise to disturbances of the digestion and respiration. The kidneys are frequently displaced and compressed by the growth, the spleen is entangled in the mass and the blood vessels and lymphatics of the digestive tract are partially obstructed. Consequently these patients are usually emaciated, suffer from intermittent diarrhea and not infrequently with nausea and vomiting and gradually a pronounced cachexia is developed.

Such a growth, whose history does not extend over a period of a year, frequently a much shorter time, develops this condition more rapidly than in ordinary intra-abdominal tumors.

Morphology.—The appearance of the abdomen in these growths is by no means characteristic. They grow anteriorly, as VanderVeer says, in the direction of least resistance; yet the size and location has much to do with the morphology.

In Mudd's interesting case the abdomen was exceedingly pendulous, the tumor resting on the patient's thighs. In other cases the contour of the abdomen is very striking, the tumor causing great swelling in the upper portion and bulging but little in the side or below the umbilicus.

In the interesting case of lipoma reported by Terrier and Guillemain, this characteristic appearance of abdomen was exceedingly striking. These tumors are usually asymmetrical and frequently extend into the pelvis, in one instance producing complete uterine prolapse. The direction of the growth of the tumor alters the appearance.

The superficial veins of the abdomen are usually very much enlarged, a fact easily accounted for, both by the pressure of the tumor upon the vena cava which frequently occurs, and by the distortion of the mesenteric veins due to displacement of the viscera.

Contrary to what one would suppose, these tumors are sometimes decidedly influenced by respiration. In Ransohoff's case, a very large tumor which lay chiefly on the right side intimately connected with the liver, was moved distinctly with each respiration. This phenomena was evidently confusing to the surgeons. As a general rule, however, these tumors are not influenced by respiration.

Palpation.—These tumors, whether lipomata or sarcomata, do not give upon palpation the elasticity or fluctuation observed in a tumor with fluid contents, and certainly not that hardness observed in ordinary uterine fibromata. Lipomatous tumors, particularly, impart upon palpation a special feeling which may be likened to that of the liver. (Terrier and Guillemain.)

Tumors that grow from the root of the mesentery and develop between its folds are very movable, but those attached along the vertebra or in the retro-peritoneal spaces of the flanks are fixed.

The surgeon, in palpating these tumors, must bear in mind that many of these solid growths are undergoing cystic changes and this alteration sometimes deludes, as the tumor does not present a uniform density upon manipulation. It is a well known characteristic of lipomatous tumors in any part of the body to impart on palpation a deceptive sense of fluctuation.

In Mudd's, Ransohoff's and Guillemain's cases of large retro-peritoneal lipomata fluctuation was apparently distinct. This sign together with the lobulated character of the tumor is confusing and more than once has lead the operator to mistake it for multilocular ovarian cyst, especially of the type of cyst described by Rokitansky.

Percussion.—This is our most reliable method of diagnosing these tumors. In all retro-peritoneal tumors whether they originate close to the vertebra or to the side, their growth is usually laterally and in these cases, according to Witzel, the colon bears a most typical and diagnostically important relation to the tumor. At first, while yet the tumor is small, the colon is external, later it is pushed forward and lies in front and, finally, the tumor attaining great dimensions and still growing laterally, the colon lies centrally in front of the tumor. Appreciating this fundamental fact we can intelligently apply our physical test of percussion.

Barring the relation of the colon, as above expressed, these tumors are usually dull upon percussion. And unless they are very large and project into the pelvis there is usually an area of resonance between the tumor and the symphysis. When situated upon the right side their relation and connection with the liver is so intimate as to efface any area of resonance between that organ and the tumor. When large the resonant area is upon the side opposite to the tumor or that part of the abdomen occupied by the displaced intestines. The relation that the colon bears to the tumor can be easily determined by inflation of the gut with gas. Unless this precaution is taken the ordinary pressure applied with a pleximeter or hand. in making mediate percussion, may cause a dull note. Percussion does not always yield the same note in any individual case. In the second case reported by Lockwood, immediately after admission to the hospital the tumor was dull upon percussion; it grew rapidly in the next fortnight and was decidedly resonant. This was explained at the operation; the growth of the tumor being rapid it extended into the mesentery, separated it widely and the intestines which were at first laterally displaced were now by the growth of the tumor, elevated and distributed over its surface.

From this clinical observation I would draw the following conclusion, that intra-mesenteric tumors may be resonant upon their upper surface and the dulness marked in the flanks, a condition closely resembling ascites. Furthermore, it is a clinical feature of retro-peritoneal growths that the area of resonance varies with the position of the patient. Consequently it is not surprising that many a dry tapping has been made through a failure to recognize these clinical peculiarities.

While not an advocate for the use of the aspirator in intra-abdominal diagnosis, yet under proper conditions this instrument will reveal valuable evidence, not only as to whether the growth is solid or cystic, but as to its nature. In retro-peritoneal sarcoma aspiration reveals only a little blood or bloody serum in the needle. This sign was one of the convincing points that enabled Wier and Bull to correctly diagnose a case reported by Devlin. In lipoma, on account of the slight vascularity of the growth, no blood is withdrawn. By puncture of ordinary cysts, whether mesenteric, kidney, ovarian or echinococcal, characteristic fluid will appear in the canula.

Blood in the urine.—In only one case in which the kidney was not involved is there recorded any change in the character of the renal secretions. Usually there is entire absence of blood in the urine of these cases.

There are two special symptoms that occur in the history of post-peritoneal growths deserving of mention. First, the occurrence of intestinal obstruction which has been noted in the history of many cases. Witzel records a case in which volvulus is diagnosed but the patient was suddenly relieved. She was pregnant at the time, and after the termination of her labor, a large swelling still remained in the abdomen which reached to the umbilicus. Again symptoms of obstruction came on, operation was attempted but the tumor was too deeply imbedded in the structure of the loin to attempt its removal. Autopsy showed it to be a retro-peritoneal sarcoma. While volvulus is mentioned in many cases, the condition does not usually advance to that stage. There are numerous attacks of partial obstruction, due to intestinal distortion, giving rise to pain, nausea and vomiting, symptoms relieved as soon as free evacuations are obtained.

The second special symptom that I wish to emphasize is edema of the extremities. It is a symptom that may occur very early in the history of the growth; it is due to pressure on the vena cava and should materially aid us in making a diagnosis.

While we have attempted to analyze the special symptoms present in retro-peritoneal growths, yet we must admit that no one is pathognomonic and a diagnosis must be reached by exclusion.

Complications. — The most serious complication attending these retro-peritoneal growths, and one that indicates usually peritoneal metastasis or serious obstruction to the circulation, is ascites. This, together with the distension due to distortion or pressure, usually characterizes the closing scene of the case.

Prognosis.—The prognosis in lipoma and other forms of innocent or typic tumors is ultimately as grave as in sarcoma. The disturbance of digestion, respiration, circulation and lymphatics sets up a condition that soon undermines the constitution The relative benignity of these tumors justifies, in all cases, an exploratory operation. In intra-mesenteric growths of all forms, the prognosis is necessarily grave. The injury to the circulation, the devitalization of the peritoneum and the difficulty attending the enucleation and often the necessary resection of the intestine, renders the operation an exceedingly grave one.

RETRO-PERITONEAL CYSTS.

A generic classification of retro-peritoneal cysts is even more difficult, in view of our meager knowledge of the subject, than that of solid neoplasms. Adhering to our original idea of considering only tumors disconnected with the great viscera, we find four varieties of retro-peritoneal cysts: 1, retro-peritoneal cysts with chylous-like contents. These are cysts of the lacteals which, by retention and rupture, give rise to true mesenteric cysts containing chyle; 2, retro-peritoneal serous cysts (Prizewoski); 3, dermoid cysts which originate in the structures which persist from fetal life; 4, traumatic cysts (Schonwerth).

Pathology.—Large cysts with chylous-like contents have frequently been found. Their retro-peritoneal nature is unmistakable, from the relation they bear the colon and mesentery, and in one remarkable instance the tumor lay behind the kidney. These tumors bear a very intimate relation to the mesentery; they are separated from the liver.

The origin of these cysts is in the lacteals, or they may, by accident or disease, have some connection with the thoracic duct itself. The character of the contents is the interesting feature of their pathology and diagnosis. Perhaps one of the most carefully observed and accurately recorded cases is that by Gustav Kilian. This surgeon, after many attempts to obliterate the sac by aspiration, finally cured the patient by operation. The fluid in its macro- and microscopic examination and chemic analysis very closely resembles milk.

A second form of retro-peritoneal cyst deserving, perhaps, more attention than it has received, is the retro-peritoneal serous cyst, originally described by the pathologist Prizewoski. A complete summary of all knowledge we possess on this variety of cysts may be found in the dissertation of Dr. A. Ohelinski, in Krakau. He concludes: 1, that retro-peritoneal serous cysts, while not often observed, are not of such great rarity. The reason of this is lack of, or faulty knowledge of the existence of such growths; 2, they are cysts of slow evolution; 3, their origin is, according to Prizewoski, the Wolffian or Müllerian bodies; 4, they are innocent in their behavior; 5, contents clear, serous fluid; 6, extirpation is a simple operation, comparatively free from danger.

The parasitic, dermoid and traumatic cysts, the three other retro-peritoneal forms, possess nothing peculiar or distinctive because of their special location and do not require further consideration.

Differential diagnosis.—The exclusive or differential diagnosis of retro-peritoneal tumors from conditions which closely simulate them is perhaps one of the most difficult problems in surgery. A conclusion can only be reached by systematic investigation of each individual abdominal organ and its function, and in a careful study of the tumor itself, its physical characteristics, its relations, and with the assistance of the aspirator, a careful microscopic and chemic analysis of its contents.

Retro-peritoneal tumors must be differentiated from every form of tumors found within the abdomen, but we encounter particular difficulties in distinguishing these growths from tumors of the kidney, cysts of the pancreas, uterine and ovarian tumors.

Kidney and retro-peritoneal tumors possess certain features in common. They are both retro-peritoneal, in both the large intestine lies in front, both are dull between the tumor and vertebral spines, no space between the kidney or tumor in which the fingers can be dipped, both grow anteriorly, consequently there is no prominent lumbar projection. Respiration influences either tumor but slightly.

Retro-peritoneal tumors that grow between the mesentery are movable, all other forms are firmly fixed. Kidney tumors, unless inflamed, can be moved laterally and upward, and whether solid or cystic, no matter what the size, retain some, often much, of their natural outline; the kidney has no sharp edges. Retro-peritoneal tumors affect but little the normal function of the kidney. In renal tumors there is alteration in the character and quantity of the urine and finally if the tumor be cystic the aspirator will reveal the characteristic fluid in either case.

Cysts of the pancreas. Cysts of the pancreas are also resonant upon percussion. They underlie the stomach, usually, and push the colon down. The tumor is generally in the epigastric or left hypochondriac region. It is not upon the physical signs, however, that we rely for differentiation. Cysts of the pancreas have been found only in adults, retro-peritoneal cysts may occur at any age. Pancreatic cysts are very painful, patients suffer with colicky pains in the epigastrium often of great violence; they have fatty stools, are frequently jaundiced; their digestion is impaired; there is rapid emaciation; the skin becomes pale and yellow, a symptom said to be pathognomonic. Diabetes mellitus is occasionally associated with pancreatic disease. These phenomena are, with exploratory aspiration, sufficient to discriminate the case.

Küster emphasizes the great value of inflating the stomach and colon as a means of developing the relation of pancreatic swellings.

Tumors of uterine or ovarian origin assume any dimension and position in the abdomen and differential diagnosis of these from the tumors under consideration can only be made by thorough investigation into the history and subjective symptoms, and by careful vaginal and abdominal examination and conjoined manipulation.

The majority of retro-peritoneal tumors are revealed only at operation and it appears that they are more frequently mistaken for ovarian or uterine tumors, perhaps because of the frequency of these growths.

BIBLIOGRAPHY.

Witzel, O: Contribution to Knowledge of Retro-peritoneal Tumors, Deutsch. Zeitshr. f. Chirurg., Leipsig, 1886, xxiv. p. 326.
Kilian, G.: Retro-perit. Chylous Cyst, Berlin. Klin. Wochschr., xxiii, 8, p. 167.
Oblalinski, A.: Serous Retro-peritoneal Cysts, Wiener Klin. Wochschr., 1891, iv, pp. 39, 719.
Schonwerth, A.: Retro-peritoneal Cyst, Münchener Med. Wochschr., 1896, xlii, p. 28.
Mudd, H. H.: Retro-peritoneal Fatty Tumor, Weekly Med. Rev., St. Louis, 1889, xx.
Johnson, R.: Retro-peritoneal Sarcoma, Trans. Path. Society, London, xi, p. 295.
Lockwood, C. B.: Diagnosis of Retro-peritoneal Sarcoma, Trans. Med. Society, London. 1895, xviii, p. 324.
McGraw, T. A.: Retro-peritoneal Tumor, Medical Age, 1887, pp. 5, 505.
McGraw. T. A.: Retro-peritoneal Abscess, Pacific M. and S. Jour. and West. Lancet, xxx, p. 686.
Cochrane, J. M.: Sub-diaphragmatic Abscess, The Canadian Practitioner, 9, p. 101.
Shepherd: Sub-diaphragmatic Abscess, The Canadian Med. Rec., 1887, p. 16.
Samples, W. R.: Retro-peritoneal Abscess, Med. Archiv., St. Louis, 1869, p. 111.
Rogowski, A.: Primary Retro-peritoneal Sarcoma, Inaugural Dissert., Freiburg, 1889.
Arnstein, J.: Primary Retro-peritoneal Sarcoma, Inaugural Dissert., Berlin, 1882.
Leyden, E.: Retro-peritoneal Abscess, Arb. a. d. Erst. Med. Klin., Berlin, 1889, iii; p. 119.
Metzel, W.: Retro-peritoneal Sarcoma, Centrlbl. f. Gynakol., 1884, viii, p. 127.
Merg, H.: Retro-peritoneal Blood Cyst, Progrès Médicale, 1881, No. 89.
Neumann, F.: Retro-peritoneal Abscess, Archiv d. Heilk., Leipz., 1869.
Terrier and Guillemain: Retro-peritoneal Lipomata, Revue de Chirurgie, Paris, 1882, xii, p. 747.
Knapp, J. B.: Sarcoma of Retro-peritoneal Glands, Trans. N. Y. Path. Soc., 1877, 2, p. 203.
Ransohoff, J.: Retro-peritoneal Cyst-sarcoma, Med. News, 1882, 43, p. 575.
Devlin: Retro-peritoneal Sarcoma, The Med. Record, 1883, 23, p. 345.
Vander Veer, A.: Retro-peritoneal Neoplasms, Trans. A. Surg. Asso., 1892.

ADDISON'S DISEASE; TWO CASES IN ONE FAMILY.

BY L. W. SCHWAB, PH.G., M.D.
CHICAGO, ILL.

My object in reporting this case is its rarity, difficulty of early recognition and the fact that two brothers died from this disease within thirteen months of each other.

I will first give the younger brother's case.

Mr. C., aged 55 years, married, Spanish descent, salesman in wholesale drygoods house.

Family history.—Father is 82 years old and in good health, though he had a slight cerebral hemorrhage last winter, but entirely recovered. Mother died at 62 years of age, from fatty degeneration of heart and kidneys. The necroscopic report does not give any clue as to the cause. An elder brother died, at 57 years of age, from Addison's disease. One brother, still living, is 45 years old and in fair health. Two sisters died in childhood from scarlet fever.

Patient's history.—Average weight 165 pounds, dark and sallow complexion and troubled with chronic constipation; moderate smoker and user of alcoholic liquors. Previous health always good with the exception of the constipation. Health began failing about eighteen months before his death, the first indication of which was a general progressive weakness, anemia, followed by emaciation. In May, 1896, he took a two weeks' vacation, then returned to work feeling some better.

He seemed fairly well until July 17, when he had a severe attack of vomiting and diarrhea lasting four days. This then ceased for about ten days, when he was again taken with diarrhea lasting three or four days. The alternation of diarrhea and constipation, or normal condition, continued throughout the whole course of the disease. The diarrhea generally lasted from three to four days and was followed by from ten days to two weeks of normal condition of bowels or constipation.

Vomiting was not a permanent symptom until about six weeks before his death, although he was continually nauseated after eating.

With the onset of the attack of vomiting and diarrhea, a marked numbness of the hands and wrists occurred, which lasted several days. After this passed off the feet and ankles became in the same condition. The numbness of the feet and ankles remained, and this condition extended upward until it reached the crest of the ilium.

The circulation was quite feeble and sluggish from the beginning. The appetite was good and at times almost ravenous. There was no pain, though he suffered from extreme exhaustion.

In January, 1897, he suffered from a general eczema, most marked over the back, which lasted about three weeks. The skin became bronzed in color about four months after his health began to fail. It varied in shade, at times being darker than at others, and on the parts where the eczema had been prominent it was darkest. The urine was negative.

After March 28 he was confined to bed. From this time on there was frequent vomiting besides nausea.

On and after March 30 he was unable to void urine. This was probably due to atony of the bladder. By this time the anemia had become very marked and he was also very much emaciated.

Treatment.—The treatment was principally symptomatic. The diet was largely milk, beef juice, eggs, clam broth and fruits. Massage was used on the limbs but had no appreciable effect. Catheterization was employed to empty the bladder.

In medicines, compound licorice powder in 2 to 4 gram doses in the evening, and occasionally a half bottle of the solution of the citrate of magnesia, mornings, were given for constipation. The eczema was readily cured by means of alkaline drinks and the use of a paste locally, consisting of starch and glycerin. The nausea and vomiting were controlled by aromatic spirits of ammonia in doses of 2 to 4 c.c. The diarrhea was controlled by the use of carbolic acid, tinct. catechu, bismuth subnitrate and chalk mixture. Tonics like iron, quinin, strychnia and arsenic were employed, but with very little effect.

The powdered dessicated sheep's suprarenal capsules in 0.2 gram doses were used at one time for a couple of weeks, but the general condition seemed to fail so rapidly and the numbness ascended so fast that they were discontinued.

During the last three weeks morphin hypodermatically in 0.016 to 0.032 gram doses were used to produce sleep and alleviate the suffering from cramps in the limbs.

The patient died May 7, 1897, from general asthenia, the end being very quiet.

At the necropsy the suprarenal capsules were found to be almost entirely wasted; what remained was tubercular, as shown by microscopic examination.

The elder brother was a very active business man, having had a responsible position in a wholesale dry-goods house. He had typhoid fever and chronic diarrhea in the army, and it troubled him occasionally ever afterward. He suffered from insomnia for several months prior to the establishment of the disease, after which he slept very well; otherwise his previous health had been fairly good.

His first symptom was impaired vision, which gradually progressed until he was unable to read ordinary print; this afterward became considerably better.

The course of his disease was about two years; with the exception of the longer course, and impaired vision, his train of symptoms were about the same as those cited in his brother's case.

There was no necropsy, but a clinical diagnosis of Addison's disease was made by eminent men about a year before his death.

His trouble had been diagnosed as pernicious anemia, neurasthenia, paresis and cancer of the liver, before the correct diagnosis was made.

Conclusions.—Drs. Osler and Quine both say it is the first instance in their knowledge where two cases of Addison's disease have occurred in the same family. Dr. Quine says children of tubercular parents would probably be more susceptible to Addison's disease, but there is no tubercular history in this family. I am informed that these brothers were very similar in habits and temperaments, and this may have something to do with the hereditary element in this instance.

Investigators have come to the conclusion that the suprarenal capsules, in addition to any other functions they may have, elaborate a substance which has a direct action on contractile power of muscular tissue, and on the muscular substance of the coats of the blood vessels, causing contraction and thus heightening the blood pressure. This probably accounts, at least partially, for the great loss of muscular power, this being so great and apparently out of proportion to the other symptoms of the disease.

449 E. 41st Street.

FORCIBLE STRAIGHTENING OF SPINAL CURVATURES DURING COMPLETE ANESTHESIA.

Read before the Chicago Medical Society, Dec. 23, 1897.

BY JOHN RIDLON, M.D.
Professor of Orthopedic Surgery in the Northwestern University Medical Schools; Senior Orthopedic Surgeon to St. Luke's and Michael Reese Hospitals; Surgeon in Charge of the Home for Destitute Crippled Children; and Consulting Orthopedic Surgeon to the Mary Thompson Hospital for Women and Children.
CHICAGO, ILL.

So much has been published during the past two years in the continental medical journals and in the daily newspapers about the new French method of treating Pott's disease that we feel warranted in briefly narrating the facts and in critically discussing this new surgical procedure.

Spinal curvatures are, broadly speaking, of four kinds: 1, simple posterior curvatures; 2, anterior curvatures; 3, lateral curvatures; and 4, the posterior curves or angles of spinal caries.

As to the first class of simple posterior curvatures, or the ordinary round shoulders most frequently seen in adolescence and old age, and the posterior curvatures of rachitic infants, nothing so far as I know has been attempted in the way of immediate and forcible straightening under anesthesia.

As to the anterior curvatures, again nothing has been attempted. Indeed cases of this class are seldom met with even by orthopedic surgeons of large experience, and their pathology is not well understood.

As to lateral curvatures of the class ordinarily called "rotary lateral curvatures" or "true lateral curvatures" which we orthopedic surgeons denominate scoliosis, I have seen no reports in the medical journals. These cases of scoliosis should be considered as quite apart from postural lateral curvatures and from the lateral curvature, either with or without rotary deformity, which often precedes the posterior deformity of spinal caries and at times accompanies the posterior deformity in cases of some years standing. Figure 1 shows a well developed case of scoliosis. Figures 2 and 3 show lateral curvature with rotary deformity in a case of spinal caries (tubercular spondylitis) prior to the development of any posterior curve or angle in the spine. Figures 4 and 5 show lateral curvature with rotary deformity in a case of tubercular spondylitis of many years standing and with well marked posterior angular deformity.

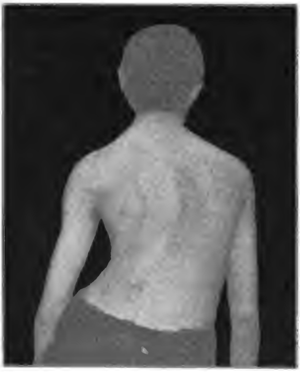
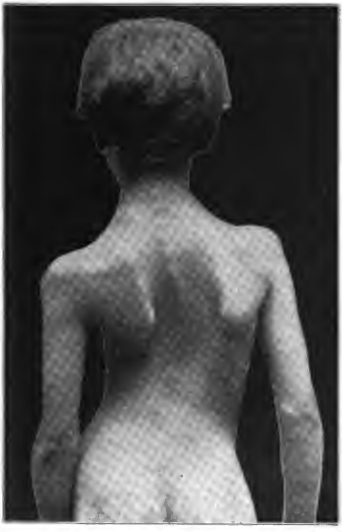


FIG. 1.—A case of scoliosis.

I have attempted forcible correction of the deformity, under anesthesia, in five cases of scoliosis. Two cases were at Michael Reese Hospital, girls of 14 and

17 years of age. The curvatures were of the ordinary right dorsal variety, of moderate degree of severity and of several years duration. In each instance I succeeded in reducing the deformity by about one-half. One case at St. Luke's Hospital, a girl of 17 years, with a right dorsal curvature of extreme severity and exceedingly rigid, and of many years duration. In many respects it resembled the case shown in Fig. 1, but the deformity was greater, the spine was stiffer, the shoulders more displaced to the right, and the deformity of longer duration. I succeeded in reducing the deformity somewhat more than one-third and made the patient taller by an inch and a quarter.

The fourth case was at the Home for Crippled Children. A girl of 15 years with a very severe left dorso-lumbar curvature of more than three years duration. Figure 6 shows this case. The pathology is perhaps uncertain. It is a case that most surgeons would unhesitatingly pronounce scoliosis; nevertheless the patient's mother died of consumption; the spine was very stiff for the known duration of the disease; she was not comfortable when lying on her back, and there was pain on pressure over the lower dorsal and lumbar portions of the spine I do not, even at this time, feel sure as to whether this case is one of tubercular spondylitis or a simple scoliosis.



FIGS. 2 and 3.—A case of tubercular spondylitis simulating scoliosis; shows lateral curvature and rotation deformity.

For nine weeks she was kept in bed with horizontal head-traction of four pounds. The spine became somewhat more flexible, but scarcely straighter. June 23, 1897, under complete anesthesia, I used great force in the way of straightening the curvature. Tearing and crackling sounds were abundant and great straightening resulted. The patient was suspended by the feet and a plaster jacket applied. She was then kept in bed for three weeks, when the operation was again repeated with further gain in the way of straightening. Figure 7 shows this gain, which in height amounts to about three inches.

The fifth case was a girl 7 years old, with well-marked right dorsal scoliosis. Deformity has been noticed since the child was six months old. The deformity is believed to be rachitic. On Dec. 15, 1897, at the Home for Crippled Children this curvature was forcibly straightened under anesthesia to about two-thirds its extent. The patient is still in the first plaster jacket, and in bed.

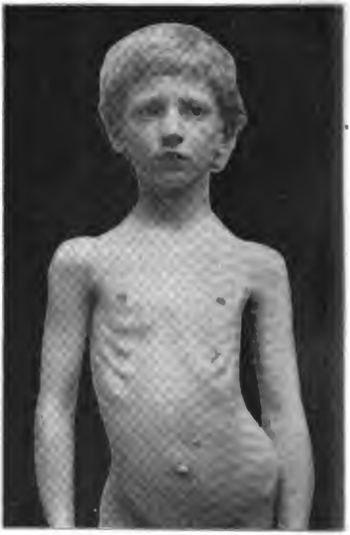


FIGURE 3.

In none of these five cases did any unpleasant symptoms result from the forced straightening.

Finally, as to the posterior curves and angles of spinal caries, that is to say, the deformities of tubercular spondylitis or Pott's disease. It was in this class of cases that the work of forcible straightening under anesthesia was commenced by Dr. Calot, of Berck-sur-Mer. Being dissatisfied with the results obtained by the ordinary methods of treatment, Dr. Calot argued that there appeared no good reason why a tubercular spinal joint should not be treated on precisely the same principles as a tubercular joint in any other part of the body, as the knee or the hip; that inasmuch as it is customary to straighten deformities resulting from hip disease and knee disease by forcible manipulations under anesthesia, either with or without a cutting operation, it would be perfectly feasible and wholly justifiable to do the same operation for the correction of the deformity resulting from the same disease in the spinal bones and joints.

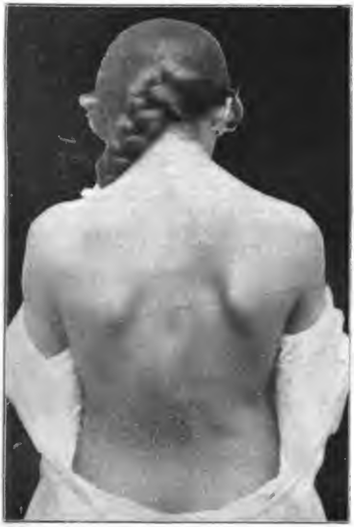


FIG. 4.—An old case of tubercular spondylitis, with posterior, lateral and rotary deformity.

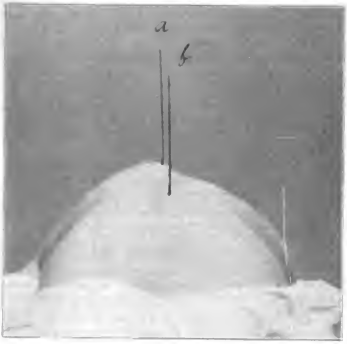
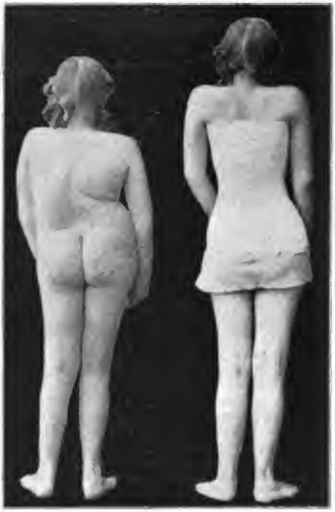


FIG. 5.—The same case shown in Fig. 4, stooping forward, viewed from the rear, showing by the parallel lines, *a* and *b*, the degree of lateral deviation; showing also the amount of rotary deformity.

I do not know just what the "ordinary methods of treatment" were with which Dr. Calot become dissatisfied, but if they were the same that one usually finds in France it is not surprising. Even in this country those surgeons who have depended upon the unqualified surgical instrument maker to measure for and fit braces and those that have placed their reliance upon the plaster jacket as a support in ambulatory cases have hardly been satisfied with the results obtained.

Dr. Calot's methods have been followed, with certain modifications, by many of the continental surgeons. It is not necessary here to name them or specify their modifications. Sufficient to say, that in recent cases the straightening was effected by longitudinal (horizontal) traction and counter-traction, by the hands of assistants or by mechanical devices, while the operator made manual pressure in the direction of straightening the kyphosis. In older cases operative measures were added. The soft parts were cut through and the bones divided by chisel in one or more places, abscesses were evacuated and cheesy foci cleaned out when such were accessible; then the deformity was straightened and the spinous processes were wired to each other to maintain the corrected position. Immobilizing dressings were applied, and the patient was kept recumbent in bed for many months.



FIGS. 6 and 7 show case No. 4 of lateral curvature, forced straightening, and four weeks later after second forced straightening.

This idea of forcibly straightening the kyphosis of Pott's disease did not originate with Dr. Calot, though he may not be aware of the fact. On Dec. 22, 1890, Dr. B. E. Hadra, of Galveston, Texas, straightened a fractured spine and wired the spinous processes. Commenting on the case in the *Times and Register*, May 23, 1891, he says: "I can not resist the temptation to connect my device also with the treatment of Pott's disease. Here, too, the indication in cases where the abscess or carious bones do not call for other surgical attempts, is mainly to steady the vertebral column in order to protect the cord, to prevent the diseased bones from rubbing on each other, and finally to make the outcome, in regard to disfigurement, as favorable as possible. Judging from my concededly limited experience, and from theoretical deductions, the proposed procedure will do better than braces, corsets, plaster jackets and the like. It seems to me called for as soon as displacement of the bones is noticed; but even if a full kyphosis should be established, it will be proper to put the patient under anesthetic, and to wire together the spinous processes, provided that the column can be straightened to a satisfactory extent."

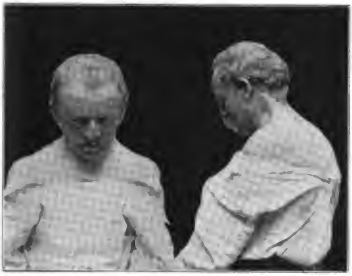


Figure 8. Figure 9.

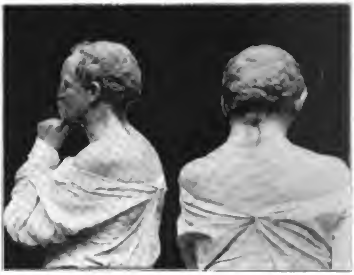


Figure 10. Figure 11.

Figs. 8, 9, 10 and 11.—Dr. B. E. Hadra's case of wiring the cervical vertebræ. Figs. 8 and 9 show habitual position; Fig. 10 shows the extent to which the chin could be raised; Fig. 11 shows the scar of the operation.

Again in the *Medical News*, Nov. 28, 1891, Dr. Hadra says, "But if an abscess cavity has already formed, the surgeon will have to decide whether or not its dimensions are too great to be filled up by new bone formation. If the abscess cavity is too large it may be better to allow the diseased surfaces to come in contact and to unite by bony anchylosis with kyphosis. Under such circumstances the wiring will be out of place. Not so, however, if the destruction of the bodies and of the inter-vertebral discs is moderate. We may then hope for the reproduction of a sufficient amount of bone, and by holding the spine in a straight line we shall obviously enforce a desirable final outcome."

Forced straightening, without a cutting operation, and without an anesthetic is an idea so old that it has practically been forgotten. Hippocrates writing 500 years B. C. spoke of it as an old method, so old then that the name of the author had been forgotten. He says:

> "Those cases in which the gibbosity is near the neck, are less likely to be benefited by these succussions with the head downward, for the weight of the head and tops of the shoulders, when allowed to hang down, is but small, and such cases are more likely to be made straight by succussion with the feet hanging down, since the inclination downward is greater in this way. When the hump is lower down, it is more likely in this case that succussion with the head downward would do good. If one then should think of trying succussion, it may be applied in the following manner: The ladder is to be padded with leather or linen cushions, laid across, and well secured to one another, to a somewhat greater extent, both in length and breadth, than the space which the man's body will occupy; he is then to be laid on the ladder upon his back, and the feet at the ankles are to be fastened at no great distance from one another, to the ladder, with some firm soft cord, and he is further to be secured, in like manner, both above and below the knee, and also at the nates; and at the loins and chest, loose shawls are to be put around in such fashion as not to interfere with the effects of succussion; and his arms are to be fastened along the sides of his own body and not to the ladder. When you have arranged matters thus, you must hoist up the ladder, either to a high tower, or to the gable end of a house; but the place where you make the succussion should be firm, and those who perform the extension should be well instructed, so that they will let go their hold equally to the same extent, and suddenly, and that the ladder may neither tumble to the ground on either side, nor themselves fall forward. But if the ladder be let go from a tower, or the mast of a ship fastened in the ground with its cordage, it will be still better, so that the ropes run upon a pulley or an axle-tree." (Dr. Adams' translation, Sydenham Ed., and Bigg's "Orthopraxy.")

Hippocrates, however, seems to favor the treatment of gibbosities by extension. Here is his method:

> "Something like an oaken bench, of a quadrangular shape, is to be laid along at a distance from the wall [in which there had previously been scooped an oblong furrow], which will admit of persons passing around if necessary, and the bench is to be covered with robes, or anything else which is soft, but does not yield much. The patient after being stoved and bathed with hot water, is to be stretched upon the board upon his face, the arms being laid along and bound to the body. Next the middle of a thong which is soft, sufficiently broad and long, and composed of two cross straps of leather, is to be carried across the patient's breast, as near the armpits as possible, then what is over of the thongs at the armpits is to be carried around the shoulders, and afterward the ends of the thong are to be fastened to a piece of wood resembling a pestle; they are to be adapted to the length of the bench below the patient, and so that the pestle-like piece of wood resting against this bench may make extension. Another such bond is applied about the knees and the ankles, and the ends of the thong fastened to a similar piece of wood; and another thong, broad, soft, and strong, in the form of a swathe, having breadth and length sufficient, is to be bound tightly about the loins, as near the hips as possible; and then what remains of the swathe-like thong with the ends of the thongs, must be fastened to the piece of wood at the patient's feet, and extension] in this fashion is made upward and downward, equally, and at the same time in a straight line."

The physician is further recommended to press the palm of the hand upon the hump while extension is being made; or a person may sit upon the hump, rising up from time to time, and letting himself fall back upon it. Or a foot may be placed upon the hump and the entire weight of the body brought gradually to bear upon it. Or better still, a lever may be used, one extremity of which is fixed in the hole in the wall (previously scooped out). The lever is brought to bear across the hump, a cushion being interposed, and firmly pressed down while extension is made. (Dr. Adams' translation, and also Bigg's "Orthopraxy.")

Ambroise Paré, in the sixteenth century, followed the teaching of Hippocrates in the essential principles. He made traction and counter-traction by towels, in place of leather thongs, and assistants, in place of the mechanical device; and he discarded the lever, making pressure with his hands, or with "two pieces of wood, four fingers long, and one thick, wrapped more or less in linen cloths, and so to apply one on each side of the displaced vertebræ, and so with your hands to press them against the bunching forth vertebræ, until you force them back into their seats, just after the manner you see before delineated."

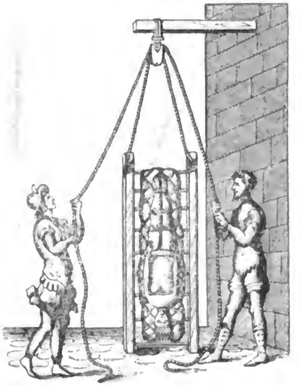


Fig. 12.—The treatment of spinal deformities by succussion. From the Venetian edition of Galen. Quoted in Bigg's "Orthopraxy."

It would appear from the above that the only thing new in "the new French method" is the use of the anesthetic, the cutting operation, which is being rapidly abandoned, and the wiring of the spinous processes as recommended by Hadra, which has not yet been demonstrated to be of the slightest value, and appears to add greatly to the discomfort of the patient and to the risk in the treatment of these cases.

European surgeons are becoming more conservative in their work of forcibly straightening spines than they were some months ago, since deaths have occurred from tubercular meningitis and from general tuberculosis arising apparently from dissemination of the disease by tearing through the protecting wall of the tubercular focus, as has occurred after forcible straightening at hip and knee. They are now more inclined to straighten gradually at several sittings instead of attempting to obliterate the deformity at once.

The procedure is as follows: The patient being fully anesthetized, lies face downward upon a table. The hips and the upper portion of the chest may be raised on padded blocks or supported by assistants. Traction is made downward on the legs by assistants or from a girdle around the pelvis by means of some mechanical device, while traction is made upward on the arms and head by assistants or by a girdle around the chest, above the kyphosis, and the aid of some mechanical device. Corrective pressure is brought to bear upon the kyphosis by the hands of the surgeon. When as much correction has been had as is thought safe, some immobilizing device is applied to the spine to maintain the corrected position, usually plaster-of-Paris is used. This is applied by some while the patient is still horizontal; by others (Bilhaut and Levassort of Paris) the patient is suspended by the feet during the application of the plaster dressing. The objections to the prone, horizontal position are that it requires many assistants, favors lordosis above and below the kyphosis, and is a difficult position when the head must be included in the plaster dressing, as it should be when the disease is at or above the ninth or tenth dorsal vertebra. With the patient suspended by the feet few assistants are necessary, and the head is readily included in the plaster dressing, but suspension by the feet causes the abdominal contents to fall upward against the diaphragm and the jacket constricts uncomfortably when the horizontal posture is resumed.

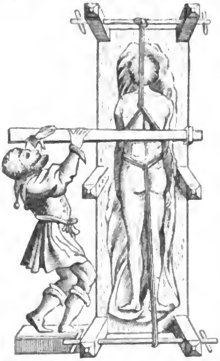


Fig. 13.—Forced correction of spinal curvature by traction and counter-traction, and direct pressure by lever. From the Florentine edition of Galen. Quoted in Bigg's "Orthopraxy."

I have attempted this operation on cases of Pott's disease only seven times. I find parents rather disinclined to submit their children to the operation.

Case 1.—Female, 5 years old, well marked dorsal kyphosis (see Fig. 15). The deformity had been present for more than two years, and for the first eighteen months of this period had increased rapidly. No abscess was made out. On July 15, 1897, at St. Luke's Hospital, the spine was straightened to the extent shown by the second tracing. Horizontal traction and counter-traction was made by two assistants to not more than forty pounds (estimated), and very little direct pressure upon the kyphosis was necessary to reduce the deformity to the degree indicated by the tracing. The tracing was made as the patient lay upon the table after traction had been discontinued. A plaster jacket, not including the head, was applied with the patient held horizontal. Immediately afterward the patient stopped breathing; the jacket was split open, and breathing was resumed. It was left gaping about an inch. Two weeks later when this jacket was removed there was found to be about two-thirds of the original deformity present. The operation was repeated and another jacket was applied, not including the head. At the end of three weeks this jacket was removed and a pressure sore the size of a dime was found over the most prominent spinous process, and there had been some return of deformity. A jacket well padded with felt to protect the spinous processes was now applied with the patient in the prone horizontal posture and without the administration of an anesthetic. The pressure sore readily healed. The spine was again straightened during anesthesia, the patient suspended by the feet and a plaster dressing applied, including the head. The patient is perfectly comfortable and spends much of the day, lying prone and raised on her elbows, in play with toys and the other children.

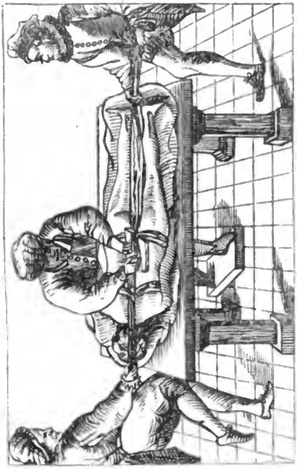


FIG. 14.—Correction of spinal curvatures by traction and counter-traction and manual pressure upon the kyphosis. From Ambrose Paré, in the sixteenth century. Quoted in Bigg's "Orthopraxy."

Case 2.—Male, 13 years old, inmate of the Home for Crippled Children, where he has been for four years. There is no history of the case prior to his coming to the Home. During the past four years he has had no treatment, but the deformity has not increased. July 21, 1897, I attempted to straighten this spine under complete anesthesia and in the manner already described. Nothing was accomplished after using as much force as seemed safe.

Case 3.—Female, 4 years old, severe upper dorsal curvature with marked forward projection of the chest. The duration of the deformity is not known. An attempt was made to straighten this case, in the usual way, July 21, 1897, at the Home for Crippled Children. Nothing was gained after using as much force as seemed safe.

In neither of these cases, 2 and 3, were there any unpleasant symptoms as a result of the attempts at straightening.

Case 4.—Male, 4 years old, lumbar kyphosis (see Fig. 16) of one year's standing, complicated with an intra-pelvic psoas abscess that flexed the thigh to a right angle. Tuberculosis in the mother's family. July 21, 1897, at the Home for Crippled Children, this spine was practically straightened (see Fig. 16). The correction has been maintained, no unpleasant symptoms have arisen; the psoas abscess has descended upon the anterior and inner aspect of the thigh, and the thigh is now nearly free from flexion deformity. The jacket has been changed without an anesthetic.

Case 5.—Female, 2½ years old, with lumbar kyphosis of more than six months' duration. The spine was completely straightened at St. Luke's Hospital, Sept. 27, 1897. The jacket has since been changed without an anesthetic, and there is no return of deformity.

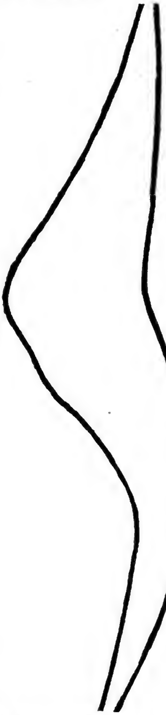


FIG. 15 shows tracing (reduced) of spinal curvature before and after straightening in case No. 1.

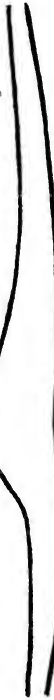


FIG. 16 shows tracing (reduced) of spinal curvature before and after forced straightening in case No. 4.

Case 6.—Boy, 5 years old, left dorso-lumbar curvature of more than three years' duration; very rigid in all directions; muscles rigid in involuntary spasm, and girdle of clonic spasm on any movement or other irritation. Unquestionably a spondylitic deformity, although he has been treated for scoliosis. Dec. 21, 1897, at St. Luke's Hospital, patient under complete anesthesia, three fourths of the deformity was effaced and patient put up in plaster. There has been increased restlessness at night, but no increase of conscious pain The plaster dressing is still on.

Case 7.—Girl, 6 years old, lower lumbar spondylitis with well marked kyphosis of more than two and one-half years' duration. There is a sinus in the left loin, from a lumbar abscess, of some months' standing. Dec. 28, 1897, at St. Luke's Hospital, patient under complete anesthesia, the spine was more than three-fourths straightened, in the usual way.

In none of these cases have there been any unpleasant symptoms, except as stated in Case 6.

From this slight experience, and from a study of the reports from abroad, I am inclined to the following conclusions:

1. Cases of scoliosis can be safely attempted, and can always be somewhat and often greatly improved by this method of treatment; and no unpleasant results are to be anticipated. It is best to straighten by horizontal traction and counter-traction and by a rotary pressure upon the curvature. During the process of straightening, that is to say, between the operations, patients should wear permanent plaster jackets, extra long, and remain in bed. The jackets will best be put on during suspension from the feet or knees, and complete anesthesia must be maintained until the plaster has set. The feet or knees should be protected from constriction during suspension by plaster stockings applied the day before the operation.
2. In cases of tubercular spondylitis, old cases, where the inflammatory process has ceased and anchylosis has resulted, should be left alone. Any gain in such cases is doubtful, and if accomplished is had at a great risk.
3. Recent cases of tubercular spondylitis can be readily straightened, often at a single operation, and at no greater risk than is encountered in straightening similar deformities at the knee and hip.
4. In older cases of tubercular spondylitis, not yet anchylosed, but in which structural shortening has taken place in the soft parts, repeated efforts at straightening should be made in place of reducing the whole deformity at one sitting.
5. Plaster jackets are best applied with the patient in the prone horizontal posture in young children, when the deformity is below the ninth or tenth dorsal vertebra; in all other cases it is best to suspend the patient by the feet or knees. In all cases where the disease is at or above the ninth dorsal vertebra the head should be included in the plaster dressing. Pads of felt, at least three-fourths of an inch thick, should be placed on each side of the spinous processes at the region of the disease.
6. All cases should be kept recumbent for a long time, many months, after the spine has been straightened
7. The plaster jacket and the steel brace are found to have the same faults and failings as in their use in acutely progressive cases of spondylitis that have not been subjected to forced straightening, that is to say, they can not be absolutely depended upon to prevent some degree of return of the deformity, and they may cause pressure sores.
8. The dangers from forcible correction of spinal deformities in cases of Pott's disease are tubercular meningitis and general tuberculosis from dissemination of the tubercular infection.
9. The advantages of this method of treatment are obvious: The reduction or abolition of an unsightly deformity; but no diminution of the duration of treatment over the ordinary methods by rest and immobilization is to be anticipated.

ESOPHAGOTOMY FOR THE REMOVAL OF A TOOTH PLATE IMPACTED FIVE DAYS IN THE UPPER THIRD OF THE ESOPHAGUS.

Presented to the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

BY JOHN O. ROE, M.D.

ROCHESTER, N. Y.

On Saturday, March 28, 1896, as I returned to the city after an absence of two days, I found Elisha L. Gates, a man of 66 years, impatiently awaiting me, and complaining of a difficulty in swallowing and of a severe pain in the neck.

I elicited from his attendant the following history of the trouble: On the previous Monday evening, while eating his dinner, his tooth-plate, which was an upper one, slipped into his throat and passed down into his esophagus. At the time, he choked but little and coughed only two or three times. He stated to those present that he had swallowed his plate, and in evidence called attention to a lump in his neck. The family physician was called soon after, but found no lump in his neck other than the pomum Adami, and as he could swallow liquids without difficulty and complained of no pain in his neck, but of soreness in his abdomen, the doctor concluded that the plate had passed into his stomach.

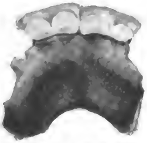
There was no change in the patient's condition until the following Thursday night, when he began to expectorate freely. The lower portion of his throat was also somewhat painful and obstructed, but as he was still able to swallow liquids freely and the only pain complained of was in his epigastrium, it was still believed that the disturbance was caused by the tooth-plate in the stomach.

On Friday the pain in the lower part of his throat and in the neck became quite severe and he could swallow no solids whatever, and liquids in small quantities only. The family physician was again called and then concluded that the plate must be lodged in the esophagus instead of the stomach, and referred the patient to me. He came to my office, but finding that I would not return until the following day, went home and awaited my arrival, the doctor seeing nothing more of him.

On examining his throat with a sound, I found an obstruction in the upper third of the esophagus, just below the cricoid body. This was evidently the tooth plate. I then endeavored to extract it. I could readily grasp the plate with a pair of esophageal forceps, but it was so firmly fixed that the amount of force necessary to extract it would certainly have lacerated the esophagus. It was therefore deemed imprudent to attempt its extraction in this manner. I endeavored, however, to turn it up by means of an esophageal hook, but it was impossible in any manner to dislodge it. It was apparent, therefore, that esophagotomy must at once be resorted to.

I sent him to the hospital and early in the evening the operation was performed, Drs. Mulligan, W. R. Howard, Soble, Rose, and the hospital internes being present. An incision was first made in the left side of the neck, which was carefully dissected down until the esophagus was reached. An esophageal sound was then passed through the mouth and the wall raised over the tooth-plate to facilitate the incision of the esophagus. This was made in the side of the esophagus, sufficiently long to permit the ready extraction of the tooth-plate, which was dislodged from its bed with the finger. As there was some ulceration of the esophagus where the tooth-plate had been imbedded, stitching and closure of the wound were not advisable. The esophagus and the wound were accordingly thoroughly cleansed and packed with iodoform gauze. On dressing the wound, there was found to be considerable sloughing of the inner wall of the esophagus on the side opposite to that in which the incision was made. The parts were thoroughly irrigated with antiseptic solution, by closing the esophagus below with packing and allowing the fluid to return through the wound and the mouth. Afterward this was done daily and the wound carefully packed with iodoform gauze. After the wound was cleansed pyrozone was also used, on account of its strong antiseptic properties. A solution, 1.3 grams of nitrate of silver to 30 c.c. water, was applied on cotton to the ulcerated surface for the purpose of stimulating the reparative process.

For four days the patient got on very well indeed. His temperature was increased but one degree, and he was fed regularly and freely through a gum-elastic catheter, which was placed in the esophagus with the dressing. There was no regurgitation of fluids from the stomach into the wound or through the catheter. The following Thursday morning, however, he suddenly began to feel ill, had quite a chill, with rising temperature, and grew rapidly worse. Congestion and inflammation of the lungs supervened and the old gentleman sank and died the following morning.



Tooth-plate, actual size.

A postmortem examination showed considerable sloughing of the esophagus on the side opposite to the incision, where the tooth-plate had been impacted, but there was no perforation of the wall. Both lungs were in a condition of congestion.

The history of this case previous to the accident is somewhat interesting. The tooth-plate that the old gentleman wore, which is shown in the accompanying cut, was made forty-five years before. It contained four incisor teeth, and nothing had been done to the plate until four years ago, when he accidentally dropped it, breaking off the hooks which clasped the adjoining teeth and held the plate in position. He neglected to have it repaired, and this accident was the result. He had always been well up to eleven years ago, when he had a sunstroke while working in the field. This so affected his mind that he was sent to Willard's Asylum for two years, when he fully recovered. Since that time he has been somewhat feeble-minded, and it was for this reason that his account of having swallowed his tooth plate was distrusted.

This case is of special interest also on account of the age of the patient and the rarity of the operation, and as illustrating the danger of the retention of an impacted sharp or angular foreign body in the esophagus for even a comparatively short period of time.

There have been reported 169 cases of esophagotomy for the removal of foreign bodies from the esophagus. The youngest patient was the case of a child one year old, operated on by Schramm[1] for the removal of a button. The child recovered. The oldest patient was a man 65 years of age, operated on by Wilson[2] for the removal of an impacted tooth plate. The patient died. Our patient, therefore, is the oldest case that I find recorded on which esophagotomy has been performed. Among the 169 cases, fifty-one were for the removal of impacted tooth plates, with thirty-six recoveries and fifteen deaths.

The danger attending the prolonged retention of foreign bodies in the esophagus is very great; and a large number of cases is reported in which death resulted in consequence of perforation of the esophagus, peri-esophageal and mediastinal abscesses and inflammations resulting from the retention of foreign bodies for even a very short time. The greatest danger is from rough, angular or sharp bodies that may pierce the esophagus or cause ulceration of its walls or inflammation of the surrounding parts, on account of the irritation thereby produced. In all cases, however, the rule laid down by Fischer[3] is a safe one to follow. That is, if the foreign body can not be extracted within twenty-four hours, it should be removed by esophagotomy without further delay.

28 North Clinton Street.

DISCUSSION.

Dr. **Scheppegrell**—It is very important to make a careful examination in these cases. There are many people who suppose they have swallowed something when they have not. I had a case in which a man woke up in the night, coughing and choking, and insisted that he had swallowed his plate. At this time we had not the X-ray, and I used the esophagoscope and was able to tell him that if he had swallowed it, it had gone into the stomach. The next day his wife found the teeth in the springs of the bed. The probe is dangerous in these cases, and operation may be equally so.

Dr. L. J. **Hammond**—The mortality in cases of esophagotomy is due to the fact that the posterior mediastinum has been entered, as shown by the postmortem. Esophagotomy is the more desirable because the probe is likely to enter the mediastinum. Esophagotomy enables us to find the point through the tube and not disturb the ulcerated region.

Dr. **Roe**—A number of cases of imaginary swallowing of the teeth have been reported. In one case the patient, a man, had nausea and vomiting, until his teeth were found under the bed, when all these distressing symptoms at once disappeared.

In regard to the esophagoscope for examining the interior of the esophagus, Mackenzie has devised one which is depicted in his work on "Diseases of the Throat." One has also been invented by Leuer of Vienna. With the latter instrument, by the use of an electric light attached, we are enabled to see into the stomach also.

A NEW METHOD OF SKIN GRAFTING.

Read at the Eighth Annual Meeting of the Washington State Medical Society, held at Spokane, May 11 and 12, 1897.

BY GEORGE T. DOOLITTLE, M.D.

SPOKANE, WASH.

There are few minor operations so annoying or troublesome as to undertake to cover a large denuded surface with skin. The average practitioner attempts to obtain large grafts by the use of the razor, but generally after one or two trials he abandons the effort in disgust. In fact, it requires an expert to do it successfully.

Many cases of extensive sores and granulating surfaces from burns and other causes are left to heal over as best they may, aided only by an antiseptic dressing, to be followed by the inevitable result of ugly scars and generally more or less contraction.

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[1] Wiener medizinische Wochenschrift, 1895, XLV, 2102-2106.
[2] Liverpool Medical and Chirurgical Journal, July, 1894, p. 480.
[3] Deutsche Zeitschrift f. Chirurgie, Leipzig, 1888-89, Bd. xxix, S. 110.

The old method of using small grafts made it a very slow process to cover a denuded surface of any considerable size, and the varied thickness of the grafts made growth uncertain. Larger pieces were tried but failure often followed, until Thiersch introduced his method, which consisted in antiseptically preparing the skin to be taken; also the surface to be grafted upon, and using a razor to cut the strips of skin.

The objection to this method is the difficulty in making an even cut, when using a knife or razor. To facilitate the cutting, Dr. McBurney, of New York, uses a pair of short toothed retractors to fasten into the skin and hold it taut while cutting. Even with the aid of these hooks, which few physicians have, the operation is not easy, and the difficulty of skin grafting, the cutting of large pieces of skin of even thickness, is not removed.

A formidable case was presented to me, recently, of an adult, where there was total loss of skin on one leg from ankle to knee, including a surface of about seventy-five square inches. This condition was caused by a bruise and sore, starting about eight years ago, going from bad to worse, with indifferent results as to treatment. No history of any constitutional disease.

It was a question if amputation would not give the best results. I was called in with that object in view by the patient's friends, and we considered the probable contractions that would result from the usual method of skin grafting, as there was already some contraction in the popliteal space, which together with the sore, made the limb useless.

We decided to do skin grafting and use the safety razor to cut the grafts with. The first attempt was successful, and we were able to make grafts one and a half by two and a-half inches and of an even thickness. Later, we made large cuts, one and a half by five inches, the large growing as readily as the small, with the advantage that the larger the grafts the less secretion from the granular surface. The advantage of the safety razor, over the knife or common razor, was marked by the quickness and ease with which these sections were obtained. The skin from which the grafts were taken was first shaved, so the hair would not increase the liability of the grafts to stick to the dressing, then scrubbed with green soap and water and washed over with ether or alcohol.

A few words are necessary in regard to the razor. (The Star made the best cuts.) Set the blade forward to about the edge of the guard. Grasp the razor between the thumb and first and second finger, thumb at the front of the razor and the first and second finger pressed firmly against the back of the blade to keep it from slipping. With the left hand hold the skin tight just back of where you begin to cut; hold the blade at an angle of about 45 degrees with the skin surface; cut toward you and against the grain; don't be afraid to bear down until you feel the blade taking hold of the skin, which will roll up on the blade as it is cut. After a little practice a strip six or eight inches long can be cut if necessary. Remove the blade and the skin will be found gathered up and the upper surface ready to spread, which is done by placing the blade flat on the granulations, holding down the last cut edge of the skin with some light instrument, and withdrawing the blade. The skin will readily spread evenly over the granular surface.

In this case there was no preparatory treatment by scraping the granulations in order to freshen them. The surface was simply washed with 1 to 3000 bichlorid solution and then rinsed with boiled water.

In dressing the planted grafts, a liberal supply of moist bichlorid gauze was used and the part firmly bandaged, without protective. Fresh gauze was applied every day and seldom was any trouble experienced from its sticking to the grafts, if a little care was used. About every third day more grafts were applied.

There was so large a surface to cover that it was thought best to leave small interspaces between grafts and thereby hasten the covering; but if these had not been left, the leg would have been covered and the patient discharged in half the time, as the vitality in the leg was not sufficient for rapid growth of the grafts and filling up of the spaces.

Today the leg is completely covered with skin with no contraction at the knee. The patient is discharged and is able to do her work.

SUMMARY.

1. With the use of the safety razor any physician can easily obtain large uniform grafts.
2. By the use of large grafts we have little or no contraction of tissue and the work of covering a large denuded surface is greatly hastened.
3. Where there is a granular surface without ulceration it is not necessary, in preparatory treatment, to freshen the granulations by scraping; neither is a protective necessary in dressing the surface, it only sweats and softens the grafts.

Rookery Building.

EUSTRONGYLUS GIGAS.

BY G. W. MOREHOUSE, M.D.

SPARTA, OHIO.

John Hopkins of Centerburg, Ohio, age 58, weight 175 pounds, medium height, general health good, March 10, 1896, had an attack of severe renal colic on right side. He passed from his bladder, according to his own statement, a pint of blood during the first twenty-four hours. He had eight similar attacks during the month of March. Attending physicians at first diagnosticated renal calculus.

March 27, he passed from the urethra a worm nearly a foot in length. Two more worms, four and seven inches long, respectively, were passed by April 1. Since this date, he states that he has expelled from his bladder fifty-five worms, from one inch to one foot long, with the addition of numerous flesh-like shreds, which he considers portions of additional worms, but which were probably blood coagula. He has not bled much since passing the first worm. He claims now to pass the parasites with comparative ease. I have seen a number of the worms and can vouch for them as answering in every detail the description given by writers.

Uranalysis, from a specimen voided in my presence, Aug. 22, 1897, showed specific gravity 1018, reaction acid, color light yellow, turbidity slight, and traces of albumin.

Microscopically, blood cells, scattered pus cells, pelvic epithelium and numerous circular nucleated bodies, about one-third the size of red corpuscles.

The paucity of literature on this subject is commensurate with the rarity of the disease. Dr. Samuel D. Gross, in his "Surgery," fourth edition, Vol. 2, p.

653, gives a good description of the parasite, but mentions no cases.

Dr. Austin Flint, in fourth edition on "Practice," merely mentions the name of the worm as "strongylus gigas, inhabiting the kidneys."

Niemeyer, 1874, Vol. 2, p. 47, gives a very good description, but cites no cases. He states that the the worm is from six inches to three feet in length.

In Quain's "Dictionary of Medicine," 1885, p. 1554, it is stated that the "eustrongylus gigas has only been once found in the human body," and that "the specimen is still preserved in the museum of the Royal College of Surgeons."

In Pepper's "System of Medicine," 1886, Vol. 4, p. 66, it is mentioned as occurring in seven different cases, but that "only part of these are admitted as genuine by certain authors."

The case cited by the writer will be kept under observation and reported upon as to future developments.

REMOVAL OF THE OSSICLES, WITH REPORT OF SIX CASES.

BY NORVAL H. PIERCE, M.D.
Professor of Otology in Post-Graduate Medical School and Hospital;
Surgeon to Throat, Nose and Ear Department of the Michael
Reese Hospital and Dispensary; Laryngologist and
Rhinologist to Emergency Hospital.
CHICAGO, ILL.

Case 1.—Chronic sclerosing inflammation of the middle ear. J. B., a negro, age 25, employed as a waiter. His general condition is good, but there is a rheumatic diathesis. His previous history is of but little value. Has had little or no treatment. Has steadily increasing deafness which became apparent in the left ear first, about three years previously. This has become so great that it seriously interferes with the proper peformance of his vocation. There is arterial tinnitus but he complained of it only when questioned. There has been no pain; no discharge. The deafness has become decidedly worse during the preceding four months.

Auricles and external canals normal, except for the absence of cerumen in the latter. Tympanic membranes pale; mobility slightly decreased; not depressed. Light reflexes quite normal. Handles of mallei were defined through their entire lengths. The Eustachian tube only slightly occluded; that on the right side more so than on the left.

Weber test positive for the right ear. Rinne with Koenig's A, negative for both; C, negative in right.

Speech for right ear two feet; for left between three and four. Whisper occasionally understood in left at one inch. Right not heard. Watch barely heard on firm pressure in left. Deafness in right ear by aerial conduction for tuning forks up to C^1, and duration markedly diminished. Left ear C^1 could be heard on some days. Nose and naso-pharynx negative.

Nov. 10, 1893, I operated on the right ear, with cocain for local anesthesia. The drumhead and malleus and incus were removed. The stapes was found to be partially fixed in the pelvis of the fenestra. It was mobilized by severing the tissue about the footplate and left in situ.

Immediately after the operation, watch could be heard on light pressure. Speech four feet, but the patient complained of hearing in a confused manner. There was no reaction. The corda tympani had been severed and a metallic taste, on the corresponding side of the tongue, was complained of, but this disappeared in less than a week. The tinnitus was markedly benefited. After three months, speech was heard in the ear operated on, two feet; watch barely on firm pressure, and the tinnitus had recurred but not continuously.

Case 2.—Chronic sclerosing Inflammation of middle ear. C. E., female; German; age 68; married. Complained principally of tinnitus. One had to shout into the ears to have her understand. Lucae's hammer-fork of 2048 vibrations could be heard in the right ear, by aerial conduction, when held very close. But it was in the right ear that the tinnitus was greatest. She applied for relief for this distressing symptom, and not to regain hearing. She described the noise as a great roaring sound. I chose the right ear for an operation because the noise in that ear was greatest. I removed the tympanic membrane, malleus and incus. The stapes was immovably fixed in the fenestra. In attempting to remove it, the crura broke off near the footplate. Subsequent examination proved that the crura were atrophied—a condition, noted by Schwartz and Blake of Boston, which is liable to occur in stapes which have been anchylosed. There were apparently no adhesion bands, nor anchylosis other than that of the stapes in the pelvis.

Immediately after the operation the tinnitus was slightly relieved, but in a week it was as bad as ever.

Case 3.—Chronic suppuration of the middle ear. A. F. T., American; male; age 25; clerk. Is of full habit. The disease dates from his thirteenth year, when he had scarlet fever. The discharge in the right ear ceased years ago, but that in the left continued. This was not great but very foul, and subject to excerbations, accompanied with pain. Hearing for the watch three inches; for speech four feet; for whisper less than a foot. Drumhead thickened markedly; a central perforation through which projects granulation tissue, imbedded in which may be felt the necrosed remains of the upper portion of the handle of the malleus.

Nov. 9, 1894, I removed the drumhead, malleus and incus. The hemorrage from the granulation tissue was abundant. The tympanic cavity, including the attic, was scraped clean and the whole packed with iodoform gauze. On the following day the packing was removed and the tympanum irrigated with permanganate of kalium solution, 1-1200, and again packed. Whenever exuberant granulations appeared, they were removed with the sharp spoon, and the bases cauterized with chromic acid in substance. With this treatment the discharge ceased in less than two months. Hearing unimproved. The arterial tinnitus was, however, greatly decreased.

Case 4.—Chronic suppuration of middle ear. R. S., American; age 24; male; machinist. Suppuration existed since his fifth year, as a sequela of scarlet fever. Condition about the same as the foregoing case, excepting that the membrane was more thickened, the discharge more offensive, and the perforation smaller and situated higher up in the posterio-superior quadrant.

Dec. 23, 1894, the membrane and body of the malleus was removed. Hemorrhage was profuse, delaying the operation greatly. I could not find the incus. The attic was freed from granulation tissue as far as possible, but on account of hemorrhage, the spoon was not used as freely as it otherwise would have been. The cavity was irrigated with Hartman's canula and packed. There was no reaction. The patient left his bed on the following day. In ten weeks, although there was still some oozing, not altogether odorless, he considered himself well enough to accept a position in a distant city, and went from under my observation. In this case the hearing was improved; five inches for watch, and three feet for speech.

Case 5.—Chronic catarrh of the middle ear. S. S. E., American; male; age 33; farmer. Deafness lasting seven years. Slowly progressive. Has had no previous treatment. General history negative, with the exception that he dates his tinnitus from an attack of malaria. There has been no discharge; little or no pain. Tinnitus continuous.

Both tympanic membranes depressed; darkened; handles shortened. Short processes prominent. Tympanic membrane and malleus of left ear movable. Weber to left. Positive Rinne for right; negative for left ear, with Koenig's A fork. Eustachian tubes slightly pervious. Speech for right ear three feet; whisper six inches; tuning fork C_1 heard; watch two inches. Left ear, speech one foot; whisper one inch; watch on firm pressure.

Operation, Feb. 10, 1894. Left ear. Membrane more thickened than I supposed before cutting it. The tensor tympani snapped when cut. The malleus and incus removed. The stapes was quite movable and was allowed to remain. Improvement after operation marked; for speech three feet; for whisper nearly a foot; watch three inches.

Although the tympanic membrane had partially reformed the improvement remained the same eight months afterward.

Case 6.—Chronic sclerosing inflammation of the middle ear. A. E.; female; age 41. She is now in the menopause. She has had ear trouble five years. The tinnitus is continuous and produces intolerable nervousness. She is becoming worse rapidly. There is no history of heredity.

Examination: Auricles, normal; external auditory canals normal and contain a very dark-colored wax. Tympanic membranes lack luster, and the left is somewhat retracted. Eustachian tubes are both open. Voice tests gave for right ear speech at two feet; whisper on contact; watch not on firm pressure. For the left ear: speech at two feet; whisper at two inches; watch on forced pressure; fork C_{111} heard in left ear; C_{11} in the right; Weber to the left. Galton heard in the left ear in the upper half of its register only. I removed the drumhead, malleus and incus of the left ear under cocain.

The stapes was found to be firmly fixed in the window and could not be removed without endangering fracture of the crura. The results were nil.

REMARKS.

Here we have six cases where the tympanic membrane and one or more of the ossicles were removed. Two of them were for chronic suppuration, three for sclerosis, and one for chronic catarrh. In the suppurative cases the results were highly satisfactory. In one case after a duration of twelve years the suppuration ceased in two months. In the other, after a duration of nineteen years, the ear was practically dry in ten weeks. We are not justified, however, in expecting that all cases will have so happy a termination. I have lately had a case under my care which was operated on by an eminent otologist over a year and a half previously, and the suppuration, foul and abundant, continued up to a few weeks ago. In this case the membrane had not reformed in the least. The pus seemed to arise from a point at the superior posterior portion of the cavity. Here I detected superficial caries. After carefully scraping the diseased area and packing with iodoform gauze for a short period, the suppuration ceased entirely. But there is a slight relapse whenever the patient takes cold. These relapses do not last but a day or two, and readily yield to cleansing douches. I believe that such relapses will occur until the cavity has been epidermized. The loss of the tympanic membrane may account for the condition, the mucous membrane being exposed to every infection from the air via the external auditory canal.

All this, however, does not militate against the performance of the operation in chronic suppurative otitis. I do not coincide with the opinion that this operation should be performed at an early date. There is a danger in being too precipitate, and yet there are a certain number of cases which very early in their course indicate this procedure. For instance, where there is a large perforation with no necrosis or granulation that may be demonstrated, but where a copious, constant or intermittent foul smelling discharge is present. All are aware of the futility of treating by the ordinary methods those cases in which fistulous perforations occur primarily in the membrana flaccida, for in such cases there is usually caries of the malleus or incus, or both.

Schwartze regards as nearly pathognomonic of caries of the head of the malleus a perforation over the short process of the malleus, with or without the presence of granulations. Further experience has fully verified this conclusion since its first publication (1884).

Grunert (A. F. O. xxxiii, p. 207), gives the following otoscopic picture as aiding in the diagnosis of incus caries:

1. Defect in the extreme upper portion of the tympanic membrane through which can be seen the retracted malleus. Beneath the upper and posterior edge of the perforated membrane may be seen a small granulation, or after careful irrigation a small drop of pus remaining. coming from above and behind. (Caries of the long process of the incus.)

2. Perforation behind the malleus, extending above to the edge of the membrana Shrapnelli, and forward quite or nearly to the long process of the malleus. (Caries of the long process of the incus.)

3. Fistula in the membrana Shrapnelli behind the processus brevis of the malleus. (Isolated caries of the incus.)

When there are two fistulous openings above and behind the processus brevis. or when the entire membrana flaccida is replaced by broad granulations the co-existence of caries of both the incus and the head of the malleus is in the highest degree probable.

Ludewig states the frequency of occurrence of isolated malleus caries compared with isolated incus caries as six to ten. The predilection point for caries of the ossicles is the long process of the incus (72 per cent). This is explained by its position, lying as it does, free in the tympanum. Its nourishment can be much more easily interfered with than that of the long process of the malleus, the circulation of which is intimately connected with the vessels of the tympanic membrane. Years ago, Schwartze called attention to this point in connection with that peculiar destructive process of the long process of the incus, accompanied by the accumulation of pus which undergoes fatty degeneration within the cavum, the tympanic membrane not being perforated.

The next in frequency to become carious is the body of the incus, 46 per cent. The head of the malleus was the seat of caries in 23 per cent., the handle in 25, and the neck 14, and the joint surface of the head 7 per cent.

Schwartze gives the following conclusion, based on the condition of the ossicles in a series of cases, the tympanic cavities of which were laid bare by external operation:

1. The amboss becomes earlier and more frequently carious than the hammer.
2. Isolated caries of the amboss occurs more frequently than isolated caries of the hammer.
3. In isolated caries of the incus, the incudo-malleus joint is unaffected.
4. The long process of the incus is by far the most often carious.
5. The incus is frequently destroyed in toto, even when the malleus in whole or in part is still present.

I have formulated the following

INDICATIONS FOR OPERATION:

1. When the perforations, situated anywhere in the pars tensa, is small and the membrane thickened and the discharge copious, pustular, long continued and offensive and has resisted continuous treatment by means of gauze drain for one month.
2. Where the perforation is small, the membrane thickened, the discharge scanty, but odorous.
3. Where more or less of the pars tensa has been lost; but the discharge continues, evidently coming from the attic.
4. When any of the indications as formulated by Schwartze or Grunert are present (see supra).

When we determine upon the removal of the ossicles for the cure of suppurative otitis, the effect which that procedure may have upon the hearing scarcely enters into consideration, for the removal of a suppurating focus in the locality is much more important than the preservation of audition. But we may hope, not only that the same degree of hearing may exist after the operation as before, but that it may be increased. Ludewig in analysing the cases operated upon in Schwartze's clinic, to the end of 1891, found that in half the cases the hearing was markedly increased; unchanged in about one-third, and decreased in about one-twelfth. In Jack's eleven cases, all were improved in hearing power.

There still remains the consideration of this operation in its relation to catarrhal and sclerosing diseases of the middle ear. That it is indicated in certain cases belonging to the former class is at this time assured, but the good name of the operation and the operator forbid its use in the latter class.

Those cases of deafness which are caused by anchylosis of the stapes in the pelvis of the fenestra ovalis will not be relieved or improved by the removal of the incus, hammer or tympanic membrane. When, however, the fixity of the stapes is secondary to adhesions between other portions of the cavum and its contents, the removal of those adhesions will more or less improve audition. Likewise when the sound waves are reflected from the scala by adhesions or anchylosis which render the malleus and incus more or less immobile, the removal of the bones will be beneficial. But it is in sclerosis otitis that stapes anchylosis occurs earliest and most surely; this is the chief characteristic of the process, the real nature of which is almost entirely unknown to us. It is probable that the portion of the pelvis immediately surrounding the footplate is where the sclerosing process begins, and from this point spreads to the structures of the internal as well as to those of the middle ear. Operative interference for the relief of deafness or subjective sensations in these cases can be attended only with disappointment.

In the purely catarrhal cases the operation is rational and promises relief to subjective sensation and improvement of audition.

OSSICULOTOMY IN CHRONIC SUPPURATION OF MIDDLE EAR.

Presented in the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY J. A. STUCKY, M.D.
LEXINGTON, KY.

In chronic suppuration of the middle ear where there is necrosis of the soft tissues, tympanic walls and attic, and caries of one or both ossicles, the most rational treatment consists in removing the carious ossicles and all necrosed granular and fibrous tissue in the tympanic cavity.

Ossiculotomy for caries has passed the experimental stage and is now recognized not only as justifiable, but a rational method of treatment. There being no such thing as special surgery, we are no more justified in leaving carious bone in the middle ear than is the general surgeon in leaving it in any other portion of the body accessible to removal. The same general and well-known principles of surgery which apply to caries and necrosis of other parts of the body, are equally applicable to the ear, and when we find carious ossicles and necrosed tympanic walls they should be removed and all necrosed parts thoroughly curetted. There still exists some prejudice against this operation which is hard to understand. I can see no reason for tolerating the presence of dead bone in the tympanic cavity, neither do I believe it possible to cure a suppuration as long as the carious and infectious matter remains. From the results obtained in the thirty-six cases in which I removed one or both ossicles (malleus and incus) and curetted the attic, I am convinced that ossiculotomy (where caries exists) is not only the most conservative, but the most rational treatment for the majority of cases of chronic suppuration of the middle ear. The cases included in this report have been operated upon within the last two years, the latest included in the report was operated upon four months ago.

The object to be attained is the complete removal of carious bone and the thorough curettement of the necrosed and granular tissue, and the establishment of perfect drainage of the attic and lower tympanic cavity. This I believe can be successfully done through the auditory canal. I follow the plan outlined by Dr. E. B. Dench of New York in his textbook on "Diseases of the Ear," except that I substitute a modification of Sexton's curette for cleansing the attic and removing part of the tympanic ring and superior wall of the auditory canal. So much has been written by eminent men, both in America and Europe, on this subject that a description of the operation is not necessary.

Observation leads me to agree with the published statement of Dr. C. H. Burnett that "necrotic tympanic structures must be removed before chronic purulency can be checked." I also believe that the Stacke or rational operation could be obviated in many cases if the entire tympanic cavity was thoroughly cleansed, and free and uninterrupted drainage through the auditory canal established. I need scarcely mention in this connection that the nasal and pharyngo-nasal cavities should receive scrupulous attention, in order that there be no obstruction to nasal respiration or danger of re-infection of the tympanic cavity through the Eustachian tube. From published reports I infer that secondary operations for relief of middle ear suppuration are as frequent from the Stacke operation as from those through the canal. The after-treatment is much shorter, there is no external wound, hence no scar, and less danger of injury to the facial nerve. I think the operation of ossiculotomy in the class of cases under consideration should be done under general anesthesia. I have found it impossible to do it with cocain, the scraping of the wall of the tympanum causing intense pain. The after-treatment consists of cleansing and facilitating drainage by use of narrow strips of gauze introduced well into the cavity.

In one of the thirty-six cases included in this report there was facial paralysis (motor) which came on the day before and lasted for five weeks after the operation. There was an extensive caries of the ossicles and I suppose the paralysis was brought on by an exacerbation of the trouble due to an acute otitis, producing a thickening of its sheath.

A summary of the results in cases operated upon are as follows: In thirty cases suppuration ceased and hearing was improved from 10 to 20 per cent.; all uneasiness in ear and head relieved. In four cases the suppuration stopped entirely for several months, then returned; this was due to formation of granulations, which were easily destroyed and patient relieved; no improvement in hearing. In two cases the results were negative, so far as relief of suppuration or improvement of hearing; the fulness and dizziness were relieved and suppuration lessened. These cases were afterward found to be tuberculur. In eleven cases the incus could not be found and only a part of the malleus. In the remaining twenty-five cases the entire remaining portions of the malleus and incus were removed. In no case did I find only one ossicle involved, the greatest amount of necrosis being observed in the incus.

The chief points to be observed in this method of treatment are: *a*, remove all carious bone; *b*, cleanse thoroughly the attic and tympanic cavity; *c*, establish free drainage.

The results obtained in the thirty-six cases referred to in this report are: 1, cessation of the discharge; 2, relief of the fulness, dizziness and general uneasiness complained of; 3, slight to marked improvement in the hearing; 4, great improvement in general health.

DISCUSSION ON PAPERS OF DRS. BURNETT AND STUCKY.

Dr. Burnett—I have made an omission. I have failed to make any remark about the stapes, but in no case have I ever thought of removing this bone. For, to do this is simply opening the door and inviting the pus to enter the cranial cavity.

Dr. Gleason—In how many of these cases was caries of the ossicles still active? It seems probable that in many of them the process ceased after partial destruction of a bonelet, and that some other cause was responsible for the continuation of the discharge for years. Whatever operation is done, chronic otitis media is never completely cured and that almost invariably there will be a recurrence of the discharge if the case be entirely neglected. The discharge tends to recur whether the operation consist in the mere removal of the malleus and incus, the removal of the ossicles and the lateral wall of the attic, or the most complete and radical Stacke operation. In a large proportion of cases it is possible to bring about a cure, or rather a cessation of discharge without operative interference so far as the ossicles are concerned. Frequent and thorough intra-tympanic syringing will in some cases bring about a cessation of the discharge. In other cases it is necessary to remove the ossicles to gain access to the attic for treatment. Still better access can be obtained by curetting away through the canal the lateral wall of the attic; but no matter what the operation be the irritation caused by the presence of dust, exfoliated epidermis and other substances that accumulate in the middle ear when the drumhead is lacking will, unless they are removed from time to time, in the course of months or years bring about a recurrence of the discharge. After the discharge has ceased the ear is in the same condition as the teeth after the dentist has filled them and is through with his patient for the time at least.

Dr. Max Thorner There can be no doubt that where we have caries and necrosis it must be removed. We did not recognize this until the general surgeons called our attention to it. We must proceed on surgical principles. If we have caries of the ossicles alone, we can remove the caries by removing the ossicles. I have operated on a number of such cases, and have seen good results occasionally in cases operated exclusively by ossiculectomy. But in most cases the caries is not limited to the ossicle. The attic and the antrum communicate by a narrow opening. I compare this narrow channel, the so called aditus ad antrum, to an hour-glass contraction. Through this narrow channel caries extends into the antrum. If in such cases we do a mastoid operation we will be astonished at the condition that we find. I have seen cases where the mastoid cells were honeycombed with granulations, while externally nothing indicated such a condition. Such cases can not be cured by ossiculectomy. If we remove first the ossicles and after a reasonable time no improvement follows, a more radical operation may be done. But many patients will not submit to this. I would limit the indications for ossiculectomy to those cases in which we have good reason to believe that only the ossicles are affected, or in which we do it for the purpose of procuring better drainage from the attic.

Dr. Gleason thinks that these cases can not be entirely cured. If he refers to the cases which are operated upon by ossiculectomy, I think he is right in regard to a number of cases, which will later on have recurrences. For we can not get rid of all the carious portions if caries is extensive in the attic and antrum, but in the more radical operation, by opening the antrum widely we can remove all the carious portions and can graft skin into the cavity and by doing that can and do get a cure. I think that from two to three years are sufficient to judge results. I, and many others before me, have had a number of cases which remained cured. I would not say that every case must have the radical operation, for I favor ossiculectomy. But it is difficult to say when the ossicles only are affected, and the cases have to be carefully selected for this operation.

Dr. J. A. Stucky—I do not want to touch the stapes if I can help it. I never remove it. I did so once, but it was accidental. As to what Dr. Gleason said about the activity of the caries, in most of my cases it was still active. The secret of success in these cases is the establishment of free drainage. I have not found the intra-tympanic syringe a success. I have always treated cases for some time before removing the ossicles. As to a cure, I think if a case remains free from symptoms, discharge, etc., for four or five months we may call it cured. I saw some cases recently on which I operated two years ago, and there has been no discharge or trouble since three or four weeks after operation. I consider them cured.

Dr. Burnett—I have always thought caries in the ossicles was active. No very scientific answer could be given without using the microscope. My experience has been that caries was limited to the ossicles. I think we can say positively that it is, if cure takes place speedily. If cure takes place slowly, we may know that there was denudation of the walls of the tympanic cavity. I have generally found some denudation, but I do not consider that as very significant, and by no means a justification of curettement. I know of cases of chronic purulent discharge of the ear which would have been cured by the removal of the ossicles if the curette had not been used. We get by this operation chiefly improved drainage, as well as the removal of the septic nidus. As to Dr. Thorner's remark about knowing when the ossicles are affected, I would say we do not know exactly what is going on in the antrum or in the mastoid cells, in an ordinary case of otorrhea with suppuration. I regard the antrum as a part of the middle ear. After ossiculectomy in these purulent cases, if we get a cure we may conclude that the antrum was not much diseased, if at all. When the antrum is diseased I have seen good results from free drainage and even if there is some relapse the improved drainage enables the patient to get rid of the fresh products of suppuration and thus escape septicemia. If we are not sure that the mastoid cavity is diseased, I do not think we should perform a Stacke operation and attack the disease through the mastoid cortex. Attack the disease in the simpler way first, through the meatus.

A FEW PARAGRAPHS ABOUT TOBACCO AMBLYOPIA.

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It is hard to say why tobacco has been selected as the general agent for inciting what is called toxic amblyopia. Is it not a fact that various toxic agents are said to be attended by varying degrees of amblyopia, and that some writers, apparently eager to ignore the effects of alcohol, have taken up the consideration of central and peripheral lesions of the optic nerve, clearly due to prolonged local disturbances of the vasomotor system, from various kinds of excesses and mechanical obstruction to nutrition, even including tuberculosis, to set forth an exaggerated view of the by no means well-established toxic effect of tobacco?

In Turkey where tobacco is inordinately used by both sexes and among all classes, the so-called tobacco amblyopia, according to competent observers, is almost unknown, and yet the daily consumption of tobacco by this portion of the Mussulmanic race is enormous. Carefully made assays show that the smoke from Turkish cigarettes (which the Turk draws directly into the lungs) contains about double the percentage of nicotine as is found in cigars made from Havana tobacco. Does not the Moslemic law religiously interdict, among other things, the use of alcohol in any form, and exacts from the faithful strict observance of bodily cleanliness by morning and evening ablutions?

In a series of clinical observations the writer reported to the Kentucky State Medical Society, in June, 1895, there will be found some cases in which it was clearly apparent that amblyopia was not caused by tobacco, but was due directly to retrobulbar neuritis. Similar cases clearly establish the fact that symmetrical scotomata is neither diagnostic of tobacco amblyopia nor constantly present in otherwise apparently "well-established cases."

In one case the central scotoma was decidedly asymmetrical; ophthalmoscopic signs *nil;* the fields for white good, but there was a scotoma for red and green extending from the fixation point to beyond the blind spot, and about 15 degrees upward and downward; inside this area he called red yellow and green white; outside of it he recognized color well. There was no scotoma for blue; he had frequent attacks of what he called nervousness; knee reflexes normal; has neither albumin nor sugar in urine, specific gravity 1022. No specific history. The patient admits being a regular drinker and smoker. Mercury, iron and nux vomica, with strict attention to bodily cleanliness, by frequent bathings, outdoor exercise by walking, in conjunction with a wholesome diet, brought about a complete cure. Alcoholic stimulants were strictly proscribed, but smoking, however, upon admission of the patient, was not discontinued. Is there a physician who at some time in his medical career has not been taught that the "exact symmetry of this affection is one of its marked features"; does one "always find the same amount of defect in each eye," and achromatopsic phenomena fairly attributed to tobacco alone?

Are these scotomata for certain colors due to toxic influences or structural changes?

We are aware, however, that occasionally a slight deviation between the two eyes coexists, which is accounted for by an original difference in visual acuity.

A brief inquiry into the anatomic conditions in the disease described, affecting the fundi, optic discs and their contiguous intracranial connections appears to be pertinent. The optic nerves have their origin in the thalami optici and the corpora quadrigemina, receiving filaments from the corpora geniculata, with filaments from the corpora geniculata, tuber cinereum, lamina cinerea, the anterior perforated space, the gray substance of the brain, the posterior columns of the spinal cord; the optic apparatus being a series of projections—the first the retina, a secondary projection in the cortex of the occipital lobe or, as some will have it, in the angular gyrus.

Is it unreasonable for one to be more inclined, taking into consideration environments and the "eccentric" character of patients, who are said to especially suffer from this form of amblyopia, to favor some mechanical obstruction to nutrition, inflammation excited by tuberculosis or even circulatory or vasomotor disturbances, the reflex phenomena in cases of megrim, keeping well to the front the neurologic elements, as some of these factors appear to be in a degree present in most all the forms of amblyopia, and not make tobacco alone chargeable for certain undeveloped or over-exaggerated type of amaurosis?

A shock to the nervous system from a railroad accident has been said to be followed by the so-called tobacco amblyopic indications. That a peculiar form of white atrophy of the optic nerve, distinguished by some ophthalmologists as having a peculiar haziness surrounding the edges of the discs, and by others without this effusion or blurring of the outlines, and attributed to the use of tobacco, should from this variance call for explicit explanation. How difficult, then, it is to differentiate the varying forms and degrees of amblyopia must appear to the clinical observer.

Does not the present limited knowledge of the relations of those aspects of the fundus of the eyes, to what is concurrently going on in the optic avenues and their several contiguous portions of the complex double brain and spinal cord, prove to us how rudimentary must be our insight into this important field of inquiry?

When we take into consideration the study of the brain function—employing that term in its widest sense—and of the aberration occurring in it, that we call disease, we can see that the subject is still in its very infancy. Can we so readily differentiate the varying forms of amblyopia, and not be "startled" when we hear it stated or see it set forth in writing describing certain trophic neuroses that are unmistakably distinctive types of disease—as "characteristic effects" of the use of tobacco?

What physician in the school of ophthalmology, no matter how enlarged his experience or favorable the surroundings to the proper study of the aberrations found in eye troubles, may say he is safe in the recognition and differentiation of anesthetic retinitis, coincident with locomotor ataxy, the retinitis of anemia and the multifarious forms of toxemia along with tobacco amblyopia—for is it not a fact that in the majority of instances we are unable with assurance to assign a cause? In lead poisoning, for instance, is the central visual disturbance due to saturnine cachexia or to albuminuria, anesthetic paralysis and encephalopathy which is so often present?

All the conspicuous symptoms of tobacco amblyopia are, in a great measure, identical with those visual disturbances which arise from axial neuritis, observed in poisoning by sulphur, bisulphid of carbon, stramonium, cannabis indica, iodoform, quinin, alcohol and even from starvation itself.

Is it not a fact that similar lesions and visual disturbances exist in varying degrees, more or less prominent, in nearly all organic lesions of the brain and spinal cord; in embolism, loss of blood, dementia paralytica, traumatism, syphilis, tuberculosis, epilepsy, dysmenorrhea; various forms of nephritis, miasmatic fevers, anemia, rheumatism, podagra and la grippe?

The very fact that a number of cases of so-called tobacco amblyopia get well, although the smoking is kept up, casts doubt upon the diagnosis. Medicinal agents which correct local lesions, and morbid conditions of the system generally, are unquestionably in evidence as the means of mitigating the disease and bringing about a cure in even old standing chronic cases. Is it fair to assume therefore that the so-called tobacco amblyopia has any distinctive characteristics? Tobacco amblyopia may have a possible existence, but closer study must show the difficulty of discriminating as to the cause, and absence of positive proofs must be admitted in a majority of cases.

In the *New York Medical Journal* of Dec. 18, 1897, there appears under caption of "Tobacco Amblyopia in a Horse," an abstract of the proceedings of a meeting of the section in ophthalmology, of the College of Physicians of Philadelphia, wherein a description is set forth of a form of amblyopia in horses, which was attributed to their eating the Australian tobacco plant. A pronounced advocate of "tobacco amblyopia" exhibited to the section two slides which a Melbourne (Australia) physician had prepared from the optic nerves of a horse which had become blind. One of these originally stained sections was restained with carmin, according to the Weigert method, and was said to show distinct signs of disease, and described as one of progressing fibrosis with degeneration (atrophy) of the nerve fibers. Is there a pathologic anatomist of today who can so readily differentiate the varying types of nerve lesions and say that this abnormal degeneration (a species of fibrosis) is diagnostic of the toxic effect of tobacco alone, either in the optic nerves of the human being or in Australian equines which are constrained to the use of tobacco?

Why go to Australia where "unexpected happenings" occur in the "make-up" of the creatures classed or unclassified among the animal kingdom?

The habit of smoking is now probably at its apogee, certainly it would be difficult to give it a wider scope of action. It may be taken as a rule that every man smokes, who by idiosyncracy is not disabled from indulgence. They who scorn the "filthy habit" and are disposed to attribute many ills to its use, belong to two or possibly three categories, whose classification need not be detailed here.

It may be prudential to mildly infer that some reasoning from their anti-tobacco standpoint, in assuming that the "weed" is responsible for a certain form of amblyopia, and, in their haste to satisfy themselves with a cursory examination, even to the ignoring of the physiologic aspect and, to further their reasoning in contra-distinction to anatomic facts, are sacrificing themselves on the altar of duty rather than promulgating their purposes.

Third and Breckenridge Streets.

THE VENOUS CHANNELS OF THE AURAL REGION.

Presented to the Section on Laryngology and Otology at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June 1-4, 1897.

BY B. ALEXANDER RANDALL, M.A., M.D.
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Study of the venous channels of the head had no great interest for most aural surgeons until a comparatively recent period; for, their important relations to septic processes in the ear and throughout the body were known and appreciated by few. Many knew that the sigmoid sinus lay uncomfortably near to their field of operation in opening the mastoid, and gave their attention largely to its avoidance. Latterly, among general surgeons especially, there has been rather a swing in the opposite direction in their readiness, on slight occasion, to expose and explore this sinus and take other liberties which better judgement and more diagnostic acumen would have showed them to be needless. Important as is this channel, it is far from being the only one demanding thoughtful consideration in a case of otitic pyemia.

The position and relation of the great sinuses of the brain need not detain us, for it is fairly appreciated that the lateral sinus is the continuation of the superior longitudinal and straight sinuses and follows the inner curved line of the occipital bone outward and forward to the temporal. Since the superior longitudinal sinus or sinuses (for it is at times a double channel) generally passes undivided to one side, that lateral sinus—more often the right—is the larger and is apt to groove out a deeper sigmoid sulcus upon the temporal bone. It is regularly joined as it bends down and in upon the back of the pyramid by the superior petrosal, coming back and out from the cavernous sinus; but there is frequently a petro-squamous sinus of notable size which follows the suture of that name and, often tunneling in the base of the pyramid, enters the lateral about the same point. The inferior petrosal sinus makes little impress upon the temporal bone, as it follows the line of suture with the body of the sphenoid; yet like the other feeders of the lateral sinus it receives countless twigs from the interior of the temporal bone and can easily be the recipient and transporter of much septic matter. Another vessel, the mastoid emissary, is a branch of the sigmoid sinus just as it begins its second curve, and has been described at times as being also a feeder of the lateral sinus. Rarely, although I have myself seen two cases and Zuckerkandl described one long since, the entire lateral sinus turns out through this opening and feeds the external jugular instead of the internal; then and probably always, the blood current must be outward by this rightly named "emissary." Tunneling far at times through the back of the temporal bone, this vessel is decidely open to injury in operations at this part of the cerebellar fossa, as I have learned to my cost. One other important sinus has a relation to the temporal bone commonly forgotten. This is the cavernous sinus at the tip of the pyramid, which may not only be involved in caries of this extremity of the temporal bone, where pneumatic cells may often be found communicating with the antrum and perhaps sharing in its suppuration, but also receives venous twigs from it which may convey infected blood.

Besides these striking and rather regular extrinsic blood channels, there are numberless small nutrients of the bone, as we may term the veins as well as the arteries; and wholly within its walls there is much diploetic structure abounding in vessels often of considerable size. My studies have not confirmed Zuckerkandl's estimate of the frequent occurrence of much diploe in the mastoid process; pneumatic bones with little if any diploetic structure have been the rule in my series, larger than his; yet none are wholly free from such structure in the squama and elsewhere. The importance of this, wherever met with, has been made clear by surgical pathology in general; but surgeons, general and special, are not so careful as regards it as they should be. The needless opening up to infection of considerable areas of such diploe must aid greatly in the dissemination of septic matter through the system; as must also the timidity which leaves such areas uncleansed after infection. The importance of this is not duly weighed by many in their work or their inaction, unless pathologic investigation has given them occasion to note how fatal intra-cranial or pulmonary disease has spread from such sources. It is in the carious cases with direct continuity of lesion extending inward that they are most interested; yet very little experience should show them case after case in which no demonstrable channel for infection can be traced for the extension of aural infection to the meninges of the brain.

Minute but of importance far beyond anything their size would suggest, are the numerous small vessels which dip into the bone with the offshoots of fibrous tissue from the dura mater, most marked at the petro-squamous suture and the subarcuate fossa. Neither of these prolongations is of much prominence except in early life, and the vessels shrink much with decrease in size; yet at each of these positions septic infection has been demonstrated and the unproven instances of such invasion are doubtless not infrequent.

THE RELATION EXISTING BETWEEN BRIGHT'S DISEASE AND CERTAIN EAR SYMPTOMS.

Presented to the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY FRANCIS DOWLING, M.D.
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During the past year a limited number of cases of ear affections have come under my observation where there were certain well marked symptoms such as tinnitus aurium, dull aching pain referred to the region of the mastoid, more or less reduction of the hearing power, slight irregularity in the gait, etc., where there were no appreciable pathologic conditions of the structures of the ear as far as could be ascertained. In most of the cases the patients were of large fleshy build and over-fed appearance and examination of the urine showed the presence of more or less albumin.

I present two cases for discussion as to whether there was not a possible connection between the ear symptoms and the organic disease of the kidneys.

Case 1.—Benjamin B., aged 50, a plumber, consulted me March 4, 1893, complained of dull aching pain in the region of the mastoid. The pain was not increased by firm pressure over mastoid region and there was no swelling. Ear drums on both sides were intact, and presented slight spots of calcareous degeneration. Hearing power reduced to fourteen inches, by the watch, on the right side and eighteen for the left. Had noises in his ears that troubled him greatly, particularly at night. The patient stated that at the battle of Murfresboro, in 1863, he was struck by a piece of shell. His hat was torn and he was knocked senseless to the ground by the concussion. He had a scalp wound which bled freely, but after it was dressed he was able to resume his place with his company and fought until the battle was over. No particular ill effects were experienced until about three months afterward when he was taken suddenly with dizziness and irregularity in walking, also severe headache. The dizziness and irregularity in walking disappeared in about a week or ten days but the headache continued, coming on periodically. He has had some aching pain in the right side of the head, back of the ear ever since. Tinnitus aurium came on in the fall of 1889, and has bothered him more or less to the present time.

Patient died August 4, 1893, and for a month previous to his death had gradually failing vision and three or four days before death, which was due to Bright's disease, the condition of the vision was reduced to the bare perception of light. The pain in the head and the tinnitus aurium continued almost to the last. The urine was loaded with albumin during the period of his last illness. The physician who attended the patient informs me that the patient died in a comatose condition, presumably from uremic poisoning. No postmortem examination was made.

Case 2.—Mrs. H., a large fleshy woman, aged 48, consulted me Feb. 6, 1897, complaining of dull, aching pains deeply seated in both ears, there was slight unsteadiness in walking, and there was a perceptible reduction in the hearing power of both ears. The ear drums were intact, and presented no pathologic changes except some thickening, bone conduction normal. Tinnitus aurium was very troublesome especially at night. Examination of the urine revealed an appreciable quantity of albumin and some casts.

I could find nothing bearing on this subject in medical literature although I examined a number of the best known works on diseases of the ear. I think, however, that in the cases mentioned, the disease of the kidneys stood in a causative relation to the symptoms which were manifested in the ears. This might take place from the retention of morbid matters in blood, through obstructed drainage on the part of the kidneys. These retained matters acted by producing a toxic irritation of the filaments of the nerves of hearing as they spread out in the labyrinth, possibly involving at the same time some structural changes in the texture of the nerve filaments. It also seems to me that there might be some structural changes possibly brought about in the nerve filaments through an albuminous exudation with its secondary degenerative changes, similar to those produced in the retina in the condition known as retinitis albuminurica. Among the first effects of such an exudation would be an increase in the pressure exerted by the contents of the labyrinth, which might on its part account for the tinnitus aurium, and also for the irregularity of gait. The degenerative changes following this stage, such as a fatty or a fibrinous degeneration, might be sufficient to account for the reduction in the hearing power owing to the disorganization of the nerve substance in a greater or less degree.

216 W. 9th Street.

SOME FURTHER RESULTS IN TREATING EARS BY MASSAGE METHODS.

Presented to the Section on Laryngology and Otology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

BY LOUIS J. LAUTENBACH, M.D.
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During the past year I have persevered with my tympanic massage treatment, and the results but confirm those obtained in the past. The results, so far as the relief of deafness is concerned, continue favorable, the tinnitus, unless attended by severe aural vertigo, usually disappearing also. These results are nearly uniform and can be demonstrated readily. It is a method that if properly applied is painless and harmless, and one that seems borne out by common-sense reasoning.

Diseased ear structures occasioning tinnitus and poor hearing are usually of the nature of closed or obstructed Eustachian tubes; diseased and thickened structures within the middle ear, such as anchyloses or hindered articulations, thickened, retracted and adherent membrane, or a nerve which either from disuse or pressure, or both, has become dormant.

My massage machines, which are applied to the auditory meatus, occasion a suction action (or in a few cases a pressure force) upon the membrana tympani, which in turn serves to attenuate the air within the tympanum and to thus open the Eustachian tube, to start the ossicles into motion, increase the circulation of the tympanum and thus cause absorption of the thickened membranes and diseased structures, and, directly acting on the drumhead, it serves to gradually loosen it from the promontory when attached. The method when properly applied, and for a sufficient length of time, repeated as necessary, will usually, at least in some measure, produce the effect required. The pressure upon the nerve is relieved as soon as the stapes begins to resume its normal elastic hold in the window, which is partially accomplished by direct suction action and partially by the increased health conditions occasioned in the structures at the juncture with the fenestra ovalis. In addition the method by sound throwing into the ear rhythmically while the suction effect is continued wakes up a nerve dormant from disuse. This method is practically the same that we see used in surgery every day; a leg on being removed from its plaster envelope finds its muscular and nervous energy impaired, the masseur is called in to manipulate the muscles, the electric current being used to re-establish the nerve tone.

It is true in the ear we have in addition a diseased condition, the non-use and the disease acting and reacting upon one another to continually increase the pathologic conditions. Restore the mechanical action in an ear and you do much to cure the disease. This restoration of the normal mechanical functions of an ear seems to be one that has not been properly met. Too often ears are considered as being in danger of becoming worse as soon as efforts directed to this end are commenced. I contend that the sooner, in any case of ear disease unaccompanied by severe acute inflammation, efforts directed to the restoration of the normal mechanical functions are made the better, and within reasonable limits, the more persistently and continuously applied the more perfect will be our results. I believe that if this doctrine was invariably acted upon the number of chronic catarrhal ear cases would rapidly grow less. I know of no method which can more efficiently meet this indication than that of tympanic massage, in connection with the old and well tried forms of ear treatment.

I now apply my massage instruments even to all acute cases of tympanic and even of mastoid disease at the earliest possible moment, and use it long and often, adapting its force to the conditions presented, and have been rewarded in often having perfect hearing restored within two or three weeks, whereas, formerly I would usually fail to get as good a result, and if obtained it would be only after prolonged treatment. I consider the method a means of displacing most of the operations on the ossicles, as by it mobilization of the ear structures can usually be produced, and when it fails it will be the differential factor in separating those in which an operation is to be considered.

In this connection I will note three cases:

Case 1.—Miss A. H., aged 21 years, had the chain of bones removed in 1887. There was little or no permanent improvement of hearing, and when I commenced to use phono pneumomassage she could not hear a clock or watch on contact. By persistent massage she at last heard an ordinary watch immediately upon the ear.

Case 2.—Mrs. E. H., aged 45 years, after la grippe, developed tinnitus and occasional vertigo, and in one ear she could barely hear the watch on contact. She was advised by an ear specialist to have one or more of the ossicles removed, but refused the operation. A year and a half later the conditions being worse, I commenced massage treatment with the result that her hearing is fair, watch being heard about thirty inches. There is no vertigo, and tinnitus only appears upon the advent of a severe cold with its attendant uric acid symptoms.

Case 3.—Mrs. J. B. K., aged 64 years, who has been deaf thirty-five years, and has been treated by several specialists without results, was informed that an operation was her only refuge, but she refused it. Last week, after two applications daily of about three hours each for five days, she heard a clock at over two inches, which before she could not be sure she heard on hard contact.

To illustrate the results obtained in ordinary cases of non-suppurative disease. I report the following cases:

Case 4.—Dr. S. H. S., aged 32, deaf nineteen years, right membrane thickened, retracted and adherent, with little or no ossicular motion demonstrable, hearing distance right ear watch light contact; closed clock five inches; left ear, watch ten inches, closed clock fifty-two inches. After two months treatment twice a week he hears right ear watch three-fourths inch; closed clock seventeen inches; left ear watch twenty two inches; closed clock seven feet.

Case 5.—Dr. W. D. M., aged 30, deaf ten years, hearing distance, right ear watch one-fourth inch, closed clock six inches; left ear watch not heard on contact, closed clock one and one-half inch. After three hours' application hearing in right ear watch three inches, closed clock fourteen inches; left ear watch one inch, closed clock nine inches. (Obtained in three months' treatment.)

Case 6.—Mrs. M. F., wife of a physician, was treated by one of our best specialists without results. She has been deaf for six years. When she came to me hearing in right ear, watch eight inches, closed clock three feet; left ear, watch not heard, closed clock not heard. After about fifty treatments she hears, right ear, watch fourteen inches, closed clock seven feet; left ear, watch not heard, clock three inches.

The suppurative cases are among the most responsive to the method. The massage serves to cleanse the middle ear cavity, while otherwise it has the same effect as noticed in the catarrhal cases. This cleansing is more thorough than can be accomplished in any other way, and I find that cases which have been treated for years in other ways, will often cease suppurating and the drumhead heal within a few months.

Case 7.—Mr. A. H., 15 years old, suppuration with right ear no watch hearing; left ear on light contact. We obtained after about fifty treatments a hearing distance for the watch of over fifteen inches in each ear. This case had received an unfavorable prognosis from first class specialists.

Case 8.—Mrs. R. W. K., aged 38 years, deaf from suppuration caused by scarlet fever during first year of life, had never heard thunder until after the massage treatment was instituted. She improved until she could hear the watch about twenty inches in each ear.

Case 9.—Mr. G. S., aged 14 years, with bare contact hearing in one ear and no watch hearing in the other, developed a hearing of over thirty inches, with cessation of the suppuration and closure of the perforations after about forty treatments.

These three cases have all been without treatment for six months or more, and illustrate an important factor, the permanence of the improvement. It is not evanescent if persisted in; it must be continued until the diseased processes are overcome by the reactive tendencies of a healthy circulation and a restored mechanical action.

Case 10.—Miss A. H., aged 25 years, after being treated for suppuration over a year by a specialist with little or no result, has received a marked increase of hearing by the mixed masseur. Watch was heard right ear hard contact; left ear light contact; is now heard right ear five inches; left ear eight inches.

Case 11.—Miss M. K., aged 13 years, after treatment for suppuration by two specialists, and a mastoid operation by a general surgeon, has been placed on ear massage treatment. As a result there has been considerable increase in hearing and a marked decrease of the suppuration. The hearing was, right ear watch one-fourth inch, closed clock five inches; left ear light contact, closed clock four inches. She now hears, right ear watch six inches, closed clock eighteen inches: left ear light contact, closed clock six inches.

Case 12.—Miss E. S., aged 18, who has been examined by two or three specialists, all of whom gave an unfavorable opinion as to the restoration of hearing, has after twenty five visits improved from a hearing distance in right ear of watch three-fourths inch, closed clock six inches to two inches and eleven inches respectively, and in left ear from watch one-fourth inch, closed clock two inches to one and one-half to eleven inches respectively.

I claim for the method when applied in a thorough and rational manner, that it will in part or wholly restore the normal mechanical action of the conducting apparatus, and will help to open the Eustachian tube more completely and induce a more healthy action in the middle ear, while it will stimulate the auditory nerve and often relieve it from the pressure which, when sufficiently long continued, would destroy its functions. Its indication after an acute middle ear or mastoid disease is evident, and thus used it would prevent the development of the multitudes of chronic catarrhal, sclerosed and chronic suppurative ears now so prevalent. In cases of suppuration its cleansing action in addition to its other reparative effects makes it a most valuable agent, and cases otherwise irremediable succumb to its action. It is valuable in differentiating cases of ear disease in which an operation is required; when the method fails in improving the hearing and relieving the tinnitus, then the necessity of an operation on the conducting apparatus is to be considered, and not until then does this question arise.

Patients with ear disease are often deterred from seeking advice because of influences which have been at work from time immemorial to make them think that work on the ear means a decrease rather than an increase of the hearing function. It will take time to overcome these wrong tendencies. Even in our public schools the text-books are very prone to make mistakes. Within a week I have found in a text-book called *"Our Bodies and How We Live,"* by Dr. Blaisdell, the following statement as to the drumhead: "If once broken this delicate membrane can not be repaired and deafness results." This book is used in a large number of American cities. Such books have a most pernicious effect, and these impressions should as far as possible be corrected.

1723 Walnut Street.

DISCUSSION.

Dr. Ellegood—I ask whether Dr. Lautenbach observes more benefit from the sound or the motion, or from the impression made on the mind of the patient. I have used phono-massage and found it without benefit. The instrument which I used was called the violin vibrophone. It was easily put out of order. Tinnitus was only improved in a few cases. I do not think that any treatment of tinnitus is always satisfactory from the fact that the causes are so very variable.

Dr. Burnett—As Dr. Lautenbach has laid much stress on the work done by the conductors, I should like to know how the result was brought about when there were no conductors to work. I should like to know whether adhesions will not recur, as in every other method?

Dr. Randall—I believe the instruments based on phono-massage are all mistakes. They have all proved, under trial, to be capable of mischief. It is known that the vibration of tuning forks will cause cataract in the eyes of animals, and if long continued will destroy the function of the nerves of sight. Most of these instruments just fail of being a complete success. On the other hand they often do harm.

Dr. Kyle—I ask if Dr. Lautenbach has tested the hearing of the patients at different times without treatment, to see whether the same variations of hearing did not occur? In a number of my cases the same variation has occurred without treatment.

The Chairman—The statement regarding the drumhead found in a public school text-books is perhaps responsible for some of the difficulties under which the physician labors when he wishes to puncture the drumhead as a remedial measure. Otherwise well informed people have the impression that an intact drumhead is essential to hearing, and that total deafness will result if there is any aperture there.

Some years ago when the phonograph method first became popular, some of my patients insisted on having this treatment, and though I could not understand, theoretically, how it could be beneficial, I tested the method for a period of several months, and was discouraged before the patients were. I can report no good results whatever. Since that time the phonograph has disappeared from my office, and this elaborate apparatus has now made its appearance. I have not had the courage to hold out hopes to these patients, knowing that in so large a percentage of cases no permanent improvement was perceived. I think that much benefit can be secured by pneumo massage.

Dr. Lautenbach—The question has been asked whether there is more benefit from sound or motion. These are all pneumo-massage machines, and with that you can use phono-massage if you wish. I have not found phono-massage of peculiar value, but pneumo-massage is very valuable. The combination of the two in my hands has proved most excellent. I do not use phono-massage alone at all. I think it is directly applicable to a nerve which has become dormant. It simply stirs up the nerve fibers to renewed activity. The machine not only restores mechanical functions, but is intended to put the middle ear cavity into a condition as nearly normal as possible by stimulating the circulatory apparatus. As to Dr. Burnett's remark about the removal of the conductors, there was formed in the middle ear cavity a membrane closing over the middle ear. The facts are simply that the ossicles were removed and hearing did not improve. The patient could not hear at all. After my treatment a watch could be heard on contact.

As to adhesions recurring, under ordinary operative conditions they would have to recur, but under this method they would not necessarily recur. As to mastoid disease, I do not wish to say that this method has any effect on mastoid disease. What it can do is to prevent mastoid disease from diminishing the hearing as much as it otherwise would.

THE IMPLANTATION OF STERILIZED ROOTS OF ANIMALS' TEETH CARRYING ARTIFICIAL CROWNS.

Presented to the Section on Dental and Oral Surgery, at the Forty-eighth Annual Meeting of the American Medical Association, at Philadelphia, Pa., June, 1-4, 1897.

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It is a deplorable fact that notwithstanding the great advances made in the treatment of the various diseases of the oral cavity, occasionally a tooth is lost in spite of all the best endeavors of the stomatologist to prevent such a calamity. It is therefore very desirable that we should be able to replace such lost organs, and often by other means than plate or bridge-work. I need therefore make no apology for bringing before you the subject of planting teeth.

Since the introduction of the operation of implantation, by Dr. Wm. J. Younger (1885) various substitutes for carrying artificial crowns—as lead capsules, porcelain teeth, double staples of metal reversed, etc., have been tried. The literature on the subject does not indicate any marked degree of success with any of the roots save natural ones.

As it is often a difficult matter to obtain a healthy root of a human tooth suitable for this purpose, it has occurred to me that we might utilize the roots of the teeth of animals, which are easily obtained from the slaughter-pen and which are as a rule free from disease, requiring however thorough sterilization. Before implanting they can be surmounted with Logan or other crowns, a cast made of the mouth and a bandage made on it by Dr. Jacks' method, which I have found the most satisfactory.

While I have not found any animal teeth with roots very closely corresponding to those of human molars, this is immaterial as the socket from which a molar has been extracted, requires remodeling even to receive a human molar, for the roots of no two human molars are alike, and less cutting is necessary in using the large single root of a bovine central incisor, all that is demanded being the removal of the septum dividing the alveoli of the socket. I have examined a number of heads and find that while bovine centrals are very well developed and admirably adapted to this purpose, it is not so with the lateral incisors at the age of which beef is usually slaughtered in this section of the country, the root of the lateral not being fully developed and the foramen very large.

This is not, strictly speaking, implantation, but a practical transplantation, which might be practiced by some who are hesitating to drill sockets in the molar region for implantation, or who might be deterred by the difficulty of inserting a multi-rooted tooth.

I will not lengthen this paper by going into the details of the removal of pulp, sterilization, canal filling, adjusting artificial crown, etc., for any necessary ariation in the procedure from what has been pub- shed on im- and trans-plantation will naturally sug- est itself to any one who will take the trouble to review the literature on the subject before undertaking the operation.

TUMORS OF THE MAXILLA.

resented in the Section on Stomatology, at the Forty-eighth Annual Meeting of the American Medical Association, held at Philadelphia, Pa., June 1-4, 1897.

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In this paper it is intended to describe briefly some of the more ordinary neoplasms of the maxilla.

The upper, as well as the lower maxillary bones, besides being subject to diseases affecting other bony structures of the body, are liable to the invasion of neoplasms peculiar and limited to themselves; among these may be mentioned the epulides, dentigerous and multilocular cystic tumors. The pathologic congeners of the epulides may, however, be found in other parts of the body, but it is not customary to call every growth found arising from the gums or from the periosteum of the alveoli an epulis.

Two, and only two, distinct forms of epulis are to be recognized as affecting these bones. The recognition of these is of importance, not only from a pathologic, but mainly from a surgical standpoint, as deciding the proper treatment, which is different in the two affections.

The hard or fibrous form is by far the most innocent in its pathologic effects; it is almost identical with the fibrous growths found in other parts of the body, yet it differs from them, mainly in its tendency to form spicula of bone.

The myeloid or softer form is composed of but a small amount of fibrous tissue, the remainder of the neoplasm being largely composed of polynucleated myeloid cells; the first variety is closely connected with the gum, also with the periosteum of the alveolus; it springs from the inner or outer surface, and unless long standing and of large growth seldom, if ever, invades the entire thickness of the alveolar process. The second form, or myeloid variety, is more closely allied to the endosteal than to the periosteal structures and is connected within the alveolus. It has a marked tendency to invade the entire thickness of the alveolar process, and does not attack the deeper portion of the bone unless improperly treated with irritants, when it may assume a malignant condition and quickly infiltrate the surrounding tissues.

The etiology of either form of epulis is somewhat obscure. Both varieties have been observed before the eruption of the teeth of infants. It is, however, generally agreed that some prolonged dental irritation is the usual exciting cause of this affection, as instanced in the following case:

A lady, aged 45, was referred to me two years ago for treatment. She had worn for five years a lower dental plate that had caused her some annoyance, yet was unattended by any special pain.

June 10, 1895, when I examined her mouth, there was seen a small growth the size of a hazel-nut, occupying the bicuspid region of the left lower jaw. She stated that the growth had been present for more than a year, but to her great alarm had enlarged considerably during the past few months. Having consented to an operation, the alveolar process, from the lower lateral incisor to the first molar down to and including a portion of the basilar part of the bone, was removed, when a fragment of the root of the second bicuspid was found imbedded in the bone; this fragment of a tooth had been, in all probability, the original cause of the formation of the tumor, which upon section proved to be a myeloid growth; although the jaw was accidentally fractured toward the completion of the operation, no untoward symptom followed. At the present date, May 31, 1897, the patient is wearing a new lower plate. There is no evidence of any return of the disease.

In all instances in which the surgeon suspects a myeloid epulis, he should not rest content without removing the entire thickness of the alveolar process. There is perhaps no more pitiful story for a surgeon, when a case of this kind returns to him with a sarcoma occupying the seat of the former operation, with perhaps infiltration of the floor of the mouth, than to declare that permanent relief is almost hopeless, and to believe that if more of the jaw had been removed during the operation, this might not have happened. This was forcibly recalled to the writer's mind in a recent case at the clinic of the Ohio Dental College.

The patient, a woman aged 32 years, had been operated on by another surgeon nine months previous to applying at the clinic. At that operation a small growth had been removed from the left upper bicuspid region. On examination, two growths were seen, one occupying the seat of the former operation, the other located in the right upper bicuspid region; both growths were myeloid in character. It is by no means common to find this primary plurality of myeloid growths, and there is a suspicion that, in this case, the disease is something more than a local one.

Both growths were removed, and although it is early to prognose, the patient at the present time is better in spirits and health than she was, and there are no local manifestations of a return of the affection.

In the treatment of myeloid epulis, in consequence of the extensive involvement of the alveolar portion of the bone, even as in this case, when the growth apparently springs from one plate only, radical measures must be insisted on. It is always the wiser plan to remove the entire thickness of the process, sacrificing whichever tooth may be deemed necessary to effect a thorough removal of the disease. It is in these cases that imperfect operations are more than useless, for when imperfectly removed, it is the unfortunate tendency of myeloid epulis to return in a still more malignant form. This fact is so well recognized that no operator, in treating these cases, should be satisfied unless he removes outlying tissue beyond the apparent extent of the growth. The best method to be employed for the purpose, is to saw completely through the alveolar process on each side of the disease and then, with one of the various forms of cross-cutting bone-forceps, remove the entire piece of bone with the tumor. It is my invariable practice, after having removed the affected piece, to use the bone-gouge freely, so as to remove every vestige of the disease. The free hemorrhage which arises in these cases is easily controlled by pressing a few small pledgets of cotton into the wound; the hemorrhage having ceased, compresses of cotton, saturated with a weak boracic acid or a permanganate of potash solution, can be gently pressed into the wound; these compresses are readily retained in position without much inconvenience to the patient, by his simply keeping his mouth closed. External bandaging is seldom required. Twenty-four hours having elapsed since the operation, the compresses may be removed, and the mouth should be rinsed four times a day with a solution of 0.32 grams of permanganate of potash to 30 c.c. of water. In ordinary cases no other treatment is required.

In the fibrous or hard form of epulis, it is seldom necessary to remove the entire thickness of the alveolar process, although it is advisable always to remove either the inner or outer plate upon which the growth is attached; it is prudent, in order to effect a limited destruction of the bone, to touch the site of the removed growth with the actual cautery; those who object to the use of the cautery can produce the same result by touching the part with nitric acid, chlorid of zinc or the trichlor-acetic acid. It is seldom necessary to sacrifice the teeth contiguous to the tumor, as the unremoved plate is sufficient to retain them in place, and in many instances, years after the operation, the teeth are found to be firm and in good condition.

Cystic diseases of the maxillary bones are perhaps more frequently due either to disease of fully developed teeth, or they are associated with teeth that have been imperfectly developed. Cysts from either one of these two causes may attain a very large size, giving rise to absorption, to a greater or less extent, of the walls of the maxilla without in so doing giving rise to much inconvenience to the patient.

It is claimed by Broca, whose views on this subject meet with general recognition, that the majority of cysts of the jaws have their origin in tooth follicles. It is held that the soft gelatinous enamel organ, being easily affected by morbid influences, readily disappears, leaving in the follicle a cavity which is ready to be transformed into a cyst. Some of these cases seem to arise without any appreciable cause; an instance of this kind was referred to me four years ago by Dr. F. Sage of Cincinnati.

The lady, 46 years of age, had, occupying the right side of the lower jaw, a small cystic tumor in the bicuspid region; the tumor had been of slow but continuous growth; at no time during the development had pain been experienced; she sought medical counsel partly on account of the inconvenience of its increasing size, but mainly from the fear that so often possesses the laity, that whenever a growth appears on any part of the body, it must of necessity be a cancer. Careful inquiry into her history failed to elicit any fact that would give a clue upon which an opinion might be founded. Both dentitions had been normal and the teeth in the immediate neighborhood of the growth were in good condition. A careful search was made during the operation to discover any probable cause that might have produced a tumor, but none was found. Four years have passed since the operation, and there has been no return of the affection.

Although the etiology of cystic tumors occurring in the jaw bones, has in recent years been elucidated to a very large extent, much still remains in doubt. Mr. Christopher Heath, in his work on the "Diseases of the Jaws," has made particular mention of the views held by Mr. F. Eve,[1] as to the development of multilocular cystic tumors of the maxilla. Mr. Eve maintains that so far from multilocular cystic tumors having a dental origin, they are on the contrary produced by an ingrowth of the epithelium of the gum. This class of tumors frequently follow injury, or irritation of decayed teeth, or long continued inflammation which has lead to an increased supply of blood to the parts; they are slow of growth, do not affect the lymphatic glands, nor infiltrate the surrounding parts. These tumors are innocent in character, but owing at times to their enormous increase and multiplicity, they not infrequently necessitate the removal of the larger portion of the lower jaw, which bone is specially affected by the disease.

The treatment of cystic tumors necessarily varies according to the form of the cyst; if it be a single cyst connected with a fang of a tooth, the extracting of the offending body will usually be sufficient to effect a cure: if, however, it be of larger size and has caused some expansion of the bone, an incision through its bony wall will be necessary; this operation will evacuate the fluid, which is usually of a dark clear color, unless inflammation has been present, in which event, the contents will be of a more purulent character. It is also the best practice to cut away a good portion of the cyst wall, as otherwise the cyst is liable to rapidly reform. In all instances in which a tooth is suspected of being present within a cyst, a careful search for it should be made, for it is obvious that resolution will be impossible so long as the tooth is retained. In both of the above instances the after treatment consists in simply using, four times a day, an antiseptic and slightly astringent mouth wash. In cases where a portion of the wall of the cyst has been removed, the cavity should be plugged with boracic acid gauze or lint that has been saturated with a solution of permanganate of potash. This packing might be removed and a fresh one used if necessary in forty-eight hours time.

But in the treatment of multilocular cystic tumors more radical measures must be adopted. If any suspicion exists as to the possibility of a sarcomatous complication, which is not infrequently the case in this character of growth, the removal of the portion of the affected bone is always recommended, and has been the usual procedure; if however, the diagnosis can be satisfactorily determined as to the absence of a malignant factor, the operation as recommended by Mr. Butcher of Dublin, can be performed. This operation consists in dividing the mucous membrane covering the cyst, and then with gouge and bone forceps or chisel and mallet, thoroughly removing all of the affected parts. The success of this operation depends entirely on the completeness with which this is done. Mr. Butcher has had very marked success with the cases of multilocular cysts that he has treated by his method; other operators, however, have had only partial success by following the plan advocated by Butcher; their comparative failure may perhaps be attributed to their having left a portion of this diseased structure unremoved.

A malignant tumor composed of the same structural elements differs in its clinical history according as it attacks the soft or the bony tissues, and differs also in bone, as to whether the compact or cancellous tissue is involved. Thus a round-celled sarcoma will not infrequently develop within the interior of the lower jaw, and will give rise to no other symptom, than perhaps enlargement of the bone. This condition may continue to exist for several years before the tumor has attained the size of a walnut, the patient during all this period complaining only of the small deformity caused by the slowly growing enlargement. What a contrast this offers to the rapidly growing sarcoma, as it occurs in the softer tissues! This difference of growth in the same structurally formed neoplasm, may partly be explained by its elementary formation. All varieties of the sarcoma belong to the type of the embryonic connective tissue; the cells of which they are mainly composed have no definite arrangement; they are in constant relation with the stroma, and consequently the cell not being surrounded by alveoli, as in the case with the carcinomata, have a marked tendency to infiltrate the neighboring tissues at a very early period. The blood vessels of a sarcoma ramify among the cells, and are very thin walled.

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[1] Eve: British Medical Journal, Jan. 6, 1883.

hence, the frequent occurrence of hemorrhage into their substance, and their rapid dissemination through the vascular, and not the lymphatic system of vessels.

The compact tissue of bone antagonizes to a marked degree the favorable conditions for sarcomatous growth; this is especially the case when a sarcoma develops between two plates of bone, as when a neoplasm of this character forms in the interior of the lower jaw. Occupying an intermediary position, clinically speaking, between the rapidly growing sarcoma of the soft parts, and those slow growing ones occurring in the lower jaw, are those instances of sarcoma originating in the the connective tissue of the mucous membrane lining the antrum of Highmore; this is by no means an uncommon location for the development of primary sarcoma. The history of all such cases is very similar. The sufferer complains of pain which is often referred to a tooth in the affected jaw. The offending member is sometimes treated, more frequently, however, is extracted, while the relief, if any, is but temporary; the uneasiness and pain continue, with perhaps some intermission. This condition may, and usually does, continue for a considerable time before any swelling of the part is observed; after the swelling appears the disease is apt to increase rapidly, and the growth, which by this time has completely filled the antrum, and has infiltrated the bony walls of the cavity, has a tendency to fungate and bleed readily. A case of this kind was referred to me by Dr. F. Saul.

A man 42 years of age who, for two years past, had had intermittent pain in the upper second bicuspid. Although the tooth was in a sound condition, he had it extracted, without obtaining any relief. Two months previously to coming to me, a slight swelling appeared on the right cheek, and a suspicious looking growth in the alveolus of the extracted tooth. He had some pain almost all the time, which now and then was severe, and was advised to have the right maxillary removed, but dissented. Five months later he returned, the swelling now extending upward under the zygoma, and reaching the temporal region. To operate with hope of permanent relief under such conditions, was extremely questionable, but he was very eager to have the operation performed. The right half of the maxillary bone was removed together with considerable of the surrounding tissue. The tumor proved to be a round-celled sarcoma; seven months afterward the disease returned and a second operation was performed. This, for a few months, gave him relief, after which time hemorrhage ensued, and occurring periodically terminated in death.

To a certain extent this case illustrates the clinical history of sarcoma, when originating in the antrum. Intermittency of growth at first, is somewhat characteristic of sarcoma wherever it occurs. This was followed by a slow but continuous enlargement, and, finally, after the bony walls of the antrum had yielded by a rapid increase in growth with infiltration of all the surrounding parts. The treatment of sarcoma must be radical, and any contemplated operation should be done as early as a diagnosis can be made. As long as a sarcoma is confined within the bony walls of the antrum, a hopeful result as to a permanent cure can be looked for, but after this disease has passed beyond these confines, any operation, however heroic it may be, will usually result in failure, as it is almost impossible to remove all of the affected tissues. I always refuse to operate in advanced cases of sarcoma of the upper jaw, without informing the patient, or his friends, of a probability of the return of the disease, and agreeing to operate simply as a means of temporarily relieving the suffering of the person so affected.

Let us defeat the Antivivisection Bill!

SOCIETY PROCEEDINGS.

College of Physicians of Philadelphia—Section on Otology and Laryngology.

Stated meeting March 1, Dr. E. L. Vansant in the chair.

Dr. F. Woodbury read a communication on

NEUROTIC OR PARADOXIC COUGH,

and presented a case to the members for examination. It was that of a woman 48 years of age, who, when first seen last December, suffered with a peculiar spasmodic cough, consisting of a single explosive effort, recurring with considerable regularity once or twice every minute. There was no expectoration and no pain, but with each cough the head was turned violently to the right side and the face was contorted. The patient was subject also to headaches and constipation. She gave a history of having had a severe nervous shock about ten weeks previously, owing to the death of a son with consumption; she had lost much sleep while nursing him for months before his death. Upon examination the larynx and lungs were found to be healthy. In the nasopharynx the mucous membrane was hyperemic in the vault. The nasal chambers were also hyperemic. The inferior turbinals were swollen. These were shrunk by an application of 10 per cent. solution of cocain, and a sharp spur was seen projecting from the septum and pressing against the left middle turbinal. When this spur was touched with a probe the patient experienced a tickling in the larynx and an irresistible impulse to cough. As the nose appeared to be the site of reflex irritation causing the cough, it was stated that the removal of the spur and the reduction in size of the turbinals by the galvanocautery would probably give entire relief. Under systemic treatment with bromids to reduce the nervous irritability, and laxatives to overcome the constipation, she had already been greatly benefited and had recently gone as long as five days without a cough or headache. Two other cases were reported, one in which the site of reflex irritation was in the throat in a mass of glandular tissue below the left tonsil; in the other one a case of ear cough. A case of persistent cough due to glandular hypertrophy at the base of the tongue was also referred to, which had been shown by Dr. Donellan at the last meeting of the Section. These cases were described as instances of neurotic or paradoxic cough, inasmuch as the site of irritation was not in the throat or chest, and treatment of the cough was unavailing, except to direct attention to some abnormality which required diligent examination into various sources of reflex irritation. Without such careful search a case might be dismissed as one of hysteric or gouty, or so-called "stomach cough." The necessity of both local and general treatment was pointed out by the reporter. In conclusion, he warned against mistaking a cough, caused by tuberculous infection of the lungs, and previous to the development of sufficient pathologic changes to afford characteristic physical signs in the chest, for merely a nervous laryngeal cough; here the altered temperature, the pallor of the larynx and possibly the detection of the bacilli in the sputum, would suggest the true nature of the case and its proper treatment. Such a case might be neurotic, but would not be a case of neurotic cough in the sense in which it is used in this communication.

Dr. P. S. Donellan mentioned a case of obstinate cough, which, after death, was found to be due to aneurysm of the arch of the aorta. Irritation of the recurrent laryngeal nerve was suggested as the cause of the cough. He inquired with regard to the so-called stomach cough, if it occurred at all, and if so, with as much frequency as the popular references to it would seem to imply.

Dr. Woodbury said that an overloaded stomach was a frequent cause of croup in young children, and indigestible food will often excite asthma in susceptible subjects; therefore the possibility of a stomach cough as a symptom of indigestion might be admitted, but it must be extremely rare, in proportion to the great number of cases of dyspepsia in which no cough is present. To warrant such a diagnosis, there should be entire exclusion of other sources of reflex irritation, the symptom should only be present after eating food and during the act of digestion and susceptible of entire relief by careful selection of the diet. It is very probable that many cases of so called stomach cough are really instances of reflex cough from glandular hypertrophies at the base of the tongue, or some other form of neurotic cough similar to those mentioned in the paper.

Dr. Vansant said that it is a very frequent occurrence, in examining the nasal chambers, to have a patient cough in your face which is a very disagreeable experience when the patient has an infected cough or bad breath. As a protection, he had found it useful to direct the patient to hold a handkerchief in the hand ready to bring it up before the mouth when he coughs.

Dr. E. L. Vansant presented a

CASE OF ACUTE EMPYEMA OF THE FRONTAL SINUSES.

A little girl, 11 years of age, was shown, who three weeks ago had an attack of cold, which probably was the grippe. She had a cough and a discharge from the nose since that time. The mother was anxious about her because a sister, 16 years of age, had died a few weeks ago with consumption. The child now has purulent rhinitis with acute empyema of the nasal chambers. The question of treatment was suggested for discussion. The reporter's own experience had been that when such cases are given early treatment, they make a good and rapid recovery. After only twenty-four hours treatment the present case had very much improved; her cough had lessened; the tenderness over the frontal sinuses had almost disappeared and the secretion was materially reduced. The treatment consisted of active purgation, followed by frequent use of warm alkaline wash, and hot moist applications to the frontal sinuses, externally, with clearing away of secretions from the mouths of the sinuses. The patient was also kept indoors. The relief here has been a quick one; rather quicker than usual in his experience of such cases.

Dr. Gibb—Empyema of the accessory sinuses is quite a frequent supplement to influenzal attacks. They generally recover with careful management, but I have not seen any get well so quickly as this one. Last summer, a young man who, while traveling in Yellowstone National Park, inhaled the alkaline dust, and had in consequence acute inflammation of the nasal chambers extending into the accessory sinuses, but confined to one side. After cleaning the outlets, thus securing proper drainage for the frontal sinus, and the usual local and general hygienic measures, the patient got well in the course of a week.

Dr. Emma Musson, a guest, asked about the effects of the direct application of oxygen in these cases. In several cases coming under her own observation good results were noted. A prominent specialist had advised opening of the maxillary sinus in one of these cases, which yielded very promptly in the course of a few days, to oxygen applied three times a day. After reading Stokes' paper on the treatment of acute otitis media by this method, she had tried it in sinus disease. Subsequently she had read that it had also been applied to the treatment of purulent discharges from the nasal chambers and accessory sinuses.

Dr. Donellan said chronic cases give the most trouble. He reported the case of a woman who had suffered with headache for two years, and he had discovered empyema of the right frontal sinus, with hypertrophied turbinals, the headache being caused and aggravated by the damming up of the outlets. Last week he had seen Dr. Delavan remove the anterior end of the middle turbinated bone with the punch forceps, and he subsequently washed out the sinus with a 50 per cent. alcohol. The case has been very much improved since the treatment.

Dr. J. S. Gibb presented a case of

NEW GROWTH IN THE LARYNX

for examination. It had a papillomatous appearance, resembling what has been described as pachydermia laryngis. The patient had been before the Section some months ago and he had brought him back by request in order that the Fellows might watch the case. The growth appeared to be about the same size as when previously shown. He had removed a piece for examination, but the place had been soon filled up again. The growth is on the right side of larynx and extends from the arytenoid down to and including the true cord. Its broad flat surface has a rough appearance and it is almost purely white. Under the impression that it might be of specific nature, he had been put upon potassium iodid, and while his general condition improved the treatment had very little effect on the growth. From the specimen submitted one pathologist reports that the growth is papillomatous and is an illustration of pachydermia laryngis. A larger piece was submitted to another pathologist, who reports that it is a papillomatous neoplasm with a suspicion of malignancy; for reasons assigned it would be best designated as an adenopapilloma.

Dr. Vansant said that the case represented an extremely rare condition and was the first one that he had seen. The condition of the tongue termed leucoplakia is frequently seen and it is our experience that such cases frequently become carcinomatous. In a patient, a man who had a rapidly growing epithelioma of the tongue requiring extirpation, he had known that leucoplakia had existed for twelve years. Such a result might be looked for in the present instance, but how long a time before this would occur it would be impossible to predict.

Dr. Woodbury asked the reporter if he contemplated extirpation of the larynx?

Dr. Gibbs said: Extirpation of the larynx is a very serious operation and certainly, in this case, one not to be considered at the present time. The report from the pathologists had been obtained with reference to deciding this question, but he did not think that either report would warrant the operation. There is no rapid extension of the growth, no glandular involvement, no deterioration of the general health and nothing to warrant the idea of malignancy at present. The patient will be kept under observation and its course reported to the Section from time to time.

Dr. Gibbs presented a specimen of

MUCOUS POLYP SPRINGING FROM THE NASAL SEPTUM.

This is a very rare occurrence. In a large number of autopsies in which Zuckerkandl had examined the nasal chamber, thirty cases occurred in which mucous polyps had sprung from the middle turbinate bodies and only three presented polyp growths from the septum. The case was that of a woman, 50 years of age, who for several years had had attacks of epistaxis, and more recently had increasing difficulty of breathing through the right naris. About two weeks previous to application for treatment, she had noticed the growth at the entrance to the nostril. Upon examination a polyp was found, which was pedunculated, and it was traced to its attachment on the septum. It was snared off and there was very little bleeding. The spot was touched with the galvanocautery and healed readily. This growth is quite different from the cases recently reported by Pierce of Chicago, of bleeding polyp of the nose, which are instances of fungous fibroma or polypus teleangiectoides. The ordinary causes of mucous polyp were absent in the case just reported, as there was no necrosed bone and no inflammation. If this case proves that it is possible for a polyp to develop at any point in the nasal chambers, without any previous disease or inflammation, it will certainly upset some of our pathologic ideas as to the causes of these growths.

Dr. Musson referred to a case occurring a number of years ago, in which she had removed with a Jarvis snare a growth as large as a hickory nut, which had grown from the septum. There was no recurrence of the growth, which was characteristic of growths from the septum.

Dr. P. S. Donellan exhibited a

PHANTOM LARYNX FOR THE STUDY AND PRACTICE OF LARYNGEAL DISEASES AND OPERATIONS.

The chief point of interest attached to this instrument was that it was formerly the property of Morell Mackenzie and had been used by him for daily practice. He would drop in small pieces of paper or beads and remove them with the forceps, thus acquiring his wonderful manual dexterity. The advantage of this method of studying the diseases of the larynx over the ordinary flat diagrams or plates in books is very obvious, but its chief usefulness is in the practice it affords in the use of instruments in the larynx, both for diagnoses and operations.

Maryland Public Health Association.

Meeting held at Baltimore, Md., Nov. 18 and 19, 1897.

(Concluded from page 670.)

Dr. Ch. Wardell Stiles, Zoologist of the U. S. Bureau of Animal Industry, Washington, D. C., read a paper on

SOME OF THE DANGERS ARISING FROM SLAUGHTER-HOUSES, WITH SUGGESTIONS FOR MEETING THEM.

Generally speaking, he thought the places for slaughtering animals for food might be divided into large abattoirs and local slaughter-houses. The former are usually located in cities and operated in connection with packing-houses. The latter are used chiefly by the meat dealers of the country towns, and the animals slaughtered at such places are generally, if not always, for local consumption. He left the abattoirs out of consideration, making criticisms on the local slaughter-house in its relation to disease. He said some local dealers obtain all their meats from the packing-houses where inspection exists; others drive from farm to farm buying animals and slaughtering them on the premises; still others buy slaughtered animals which farmers bring to town; while the majority of dealers in small towns own or rent slaughter-houses where they do their own killing. In many cases these houses are located on the banks of rivers or creeks into which they drain. Frequently the offal is thrown down the embankment and left there to be eaten by hogs, dogs and rats, or in some parts of the West by Indians, or to decay and drain into the stream. Quite often the slaughter-houses are located on farms, the butcher giving the offal to the farmer as feed for his hogs, in lieu of paying rent. In case a town is provided with more than one slaughter-house, these houses are generally scattered north, south, east and west, each butcher apparently trying to so locate his house as to prevent any undue amount of curiosity on the part of his competitors regarding the character of his stock. Again, slaughter-houses are usually situated just beyond the borders of the town which they supply. Thus they do not come under the supervision of the local Board of Health; and as few, if any, of the State Boards pay any attention to them, they are without any sanitary supervision. Notes taken on the premises of various slaughter-houses were read illustrating the actual existing conditions. Some places were found in good condition; some in a condition that was a disgrace both to their proprietors and the communities that tolerated their existence. Every slaughter-house is from the very nature of things a center of disease; and naturally the poorer the condition of the premises the more dangerous they are. Even if only a few animals are slaughtered each week, the total number may amount to several hundred during the year. Some of the animals are surely diseased. At least one of the hogs has trichinosis, and when the offal of this hog is fed to other hogs which are raised on the grounds, these hogs can not escape infection with trichinæ. But that is not all. Slaughter-houses are often over run with rats: the rats feed on offal, and when feeding on the offal of a trichinous hog, they likewise can not escape infection with trichinæ. About 55 per cent. of the rats I have examined from slaughter-houses have been found to be infected with this disease, so that if a hog at a slaughter-house eats a rat the chances are fifty five in a hundred that he will catch trichinosis. Now, suppose that a slaughter-house is burned or abandoned; the rats inhabiting the premises naturally wander to the neighboring farms in order to obtain food, and of every hundred rats which leave the slaughter-house, fifty-five carry with them the disease known as trichinosis. This disease they transmit to hogs if eaten by them. From this it will be seen that every slaughter house where hogs are killed, is a center for the spread of trichinosis to neighboring farms, and thus forms one of the great factors in keeping this disease alive, so that today about 1 per cent. of our American hogs are infected with trichinæ. Yet, fortunately, because of our custom of cooking pork thoroughly, the disease is usually killed before we consume the pork, and our cases of trichinosis in man are thus reduced to the few, chiefly Germans, who eat raw or rare pork.

But trichinosis is by no means the only disease transmissible to man which centers at the slaughter-house. Of the cattle killed during the year, some of them surely have tuberculosis; in many cases, as I said, the entrails of the slaughtered animals are thrown to the hogs on the premises. There can be but one result, and that is to spread tuberculosis to the hogs. Fortunately, we find only about three thousandths of 1 per cent. of the American hogs have to be condemned because of tuberculosis; and here again our custom of thoroughly cooking our pork protects most of us to a great extent against infection from this source.

Another disease, apparently on the increase in this country, and against which we have at the present moment absolutely no protection, is hydatid disease, caused by an animal parasite which passes its adult stage in the intestine of Old Dog Tray, in the form of very small tapeworms, almost the smallest tapeworm known; its larval stage is the largest larval tapeworm known, varying from the size of a bean to that of a child's head, and living in the liver and lungs of cattle, sheep, swine and a large number of other animals, including man. Its complete life cycle is as follows: Starting with the adult tapeworm in the small intestine of dogs, the eggs are scattered on the ground and swallowed by cattle or other animals with the fodder or water. Upon arriving in the stomach the eggshells are destroyed and a six-hooked embryo, which is thus freed, bores its way through the intestinal wall and wanders to the various organs of the body; coming to rest in a suitable place it increases in size, forming a bladder which generates numerous heads, each one capable of developing into an adult tapeworm when swallowed by a dog.

Now, anyone who has had the misfortune to visit a slaughter-house, knows that dogs soon find that these premises are excellent places to obtain food. The butcher of course can not utilize the parasite in his trade, so he throws the infected organ aside, or at least discards the infected portion of the organ. This discarded portion forms a delicacy for the stray or pet dog which happens to be near; and thus becoming infected with tapeworms the dog proceeds to unconsciously transmit this disease to the persons who pet him or to the flocks and herds he is supposed to keep from danger. It is claimed that in some districts of Iceland every sheep of three years old was infected, while it is an exception to find a cow ten years old free from the disease. In India, about 70 per cent. of the cattle are infected. In Germany the statistics vary for different animals and for different parts of the country, from 1 to 37 per cent. Turning to our own country, we have as yet no exact statistics upon this disease, but at a rough guess, judging from what I have seen at slaughter-houses and abattoirs, I should estimate that about one-fourth to one-half of 1 per cent. of our American hogs harbor this parasite. This worm is the most fatal animal parasite found in man, 50 per cent. of the cases of infection dying within five years. The disease is especially common in man in Iceland, it being estimated that about 2 per cent. of the inhabitants are infected; it is also quite common in Australia where 3000 cases were reported from 1861 to 1882, or about 150 cases per year. In Central Europe the hydatid is found on an average once in every 130 postmortems, while in Rostock it is found in nearly 2.5 per cent of the postmortems. In our own country the disease is not so common, but one of my assistants, Dr. Sommer, recently compiled for the United States 100 cases which were reported in various medical journals. Taking the world at large, certainly 500 human lives per year would be a very moderate estimate of the victims of this disease transmitted to us by Old Dog Tray.

There has been a regular decrease in Berlin, Prussia, in the number of lungs and livers of cattle and sheep condemned for this disease, the statistics falling for cattle from 4.6 per cent. of the lungs, and 1.8 per cent. of the livers in 1888-1889, to 1.7 per cent. of the lungs, and 0.5 per cent. of the livers in 1892-1893; in sheep they fell from 1.4 per cent. of the lungs and 0.9 per cent. of the livers, in 1888-1889, to 0.9 per cent. of the lungs and 0.3 per cent. of the livers in 1892-1893.

The fewer slaughter-houses we have the easier it will be to control the diseases. In a tour of inspection I made not long ago, selecting two different States, I found twenty-nine towns, varying from about 100 to 1600 inhabitants, were provided with sixty-nine local slaughter houses. Sixteen of the towns had two slaughter-houses each, eight had three each, two had four each and one had five! Thus these twenty-nine towns provided sixty-nine centers of disease for the surrounding area.

Segregate the slaughter houses, compelling all the butchers of each town to do all of their killing in a given inclosed area. The slaughter-house could best be built by the city, stalls being let to the butchers for slaughtering purposes.

This suggestion will naturally not meet with the approval of all butchers. The objection will be made that they have money invested in slaughter-houses and that any change will mean financial loss to them. To this I would reply that all or nearly all local slaughter-houses are frame buildings which are not of much value; they are cheaply built and poorly arranged; they represent an infinitely smaller investment than the stock of neighboring farmers, or the lives of the inhabitants, computed at the legal value, and the temporary loss to be sustained by the butcher will be infinitely less than the continuous loss sustained by neighboring farmers and by the community at large. Furthermore, these numerous slaughter-houses are menaces to public health, and under these circumstances a small financial loss to a few individuals can not be taken into consideration.

Another objection that will be made by the butchers is that while the segregation of the slaughter houses would reduce the number of centers of infection, it would not reduce the amount of infection in a given district. To this the reply is, that the objection is more apparent than real, since a given amount of infection in a restricted area is more easily controlled than the same amount of infection scattered over a large area and in different localities.

Objection will also be made that this segregation of the slaughter houses is an innovation, an experiment, a scientific theory which is not practicable. The reply to this is, that while it is an innovation in this country, it has been tested and found satisfactory in other countries where practical experience has borne out scientific theory, and where the plan has been shown to be entirely feasible.

Objection may be raised that one butcher does not care to be subjected to having his business open to the gaze of other butchers. This objection answers itself. There undoubtedly are butchers who would object to having other butchers see the class of stock they kill or raise, and the sooner the health authorities exercise some control over these dealers the better.

My second suggestion relates to the director of the proposed municipal abattoir. If the slaughter-house is placed under city control, the natural tendency among certain people will be to claim that patriotism calls for the appointment of the director according to his political pull. I would modestly suggest that an unsuccessful blacksmith, or barber, or a physician, dentist or druggist, who has failed in your State examination, is hardly the person to be appointed director of a municipal abattoir, notwithstanding his political pull. In this matter of public health we are dealing with life and death, and we must have a man equal to the position. Personally, I believe that the man appointed should be a veterinarian, and should be ex-officio a member of the local board of health. And by this word veterinarian I do not mean a quack horse-doctor, but rather a well educated and scientifically trained graduate of a reputable school, and besides that a man of experience in gross pathology and meat inspection. The scientific meat-inspector can render public service in the prevention of disease among men and livestock to a degree scarcely dreamed of by non-technically trained laity.

My third suggestion is on behalf of the butcher. While I believe every butcher sins more or less in selling meat which he ought not to sell, he unquestionably does so unintentionally and innocently in many cases. He is not trained in pathology and does not understand the exact nature of all he sees. He may even tell his customer that this or that meat is not an especially good article, but it can not be expected that he knows the danger connected with lesions which even few physicians would at first recognize.

The proposition that diseased meats which are dangerous as articles of food should not be allowed on the open market, is one which will receive universal support from all sanitarians and also from the thinking public. The question however arises as to the classes of diseased meats and the stages in these diseases that justify their condemnation, or that justify their sale, and the method of their disposal if condemned.

In some foreign cities regulations exist, or have existed, compelling the burial or cremation of meats affected with certain diseases. To such extreme measures I am opposed, and this for several reasons. Such destruction by burial or by burning is in itself an expense. It also results in a total and unnecessary loss of the carcass. Again, the burial of a diseased carcass, unless buried in quicklime or other destructive material, does not meet either the practical or the theoretic requirements of destruction of diseased material. Take trichinosis, for instance. In some places the carcasses of trichinous hogs have been buried by order of the sanitary officials. After this has been done, the owners of the carcass have disinterred the hog and it has been used for food. This has happened a number of times in Germany, one case being reported within less than a year past. Even had these human rats not disinterred the body and fed it to their friends and customers, the grave would have been accessible to rodents, such as rats, field mice, etc., which would not hesitate to feed upon the carcass, and thus become infected with the disease, resulting in a possible (theoretic) ultimate transmission of the disease to other hogs. Finally, I am opposed to this method of alleged destruction on the ground that diseased or partially diseased carcasses can be utilized under certain conditions and restrictions or in certain ways, so that the owner will not lose the entire amount of his investment.

Three methods in particular are open, the method selected being dependent upon the nature, extent or stage of the disease and the facilities at hand. These methods are: 1, utilization as fertilizer; 2, rendering the meats harmless by cold storage, cooking, or preserving, and then placing them upon the market; 3, selling the meats under a declaration of their character.

There is no parasitic disease known which will withstand the degree of heat used at the large abattoirs in the preparation of fertilizers. "Tanking for fertilizers" is therefore an absolutely safe method for the disposition of condemned meats, no matter how serious the infection is, or to what extent the disease has progressed.

In connection with certain bacterial and parasitic diseases, however, a question arises as to the necessity of condemning to the tank certain diseased conditions. A case of generalized cestode tuberculosis (*Cysticercus bovis*) should undoubtedly be "tanked," but in a very light infection the question takes a different aspect, namely: Can not the diseased portion be cut out and the rest of the carcass be placed on the block? To allow such meat on the market, leaving the consumer to suppose that he is purchasing a first class article, is evidently an injustice to the buyer, for it is by no means certain that all of the parasites have been detected and removed. To condemn a light infection of this disease is, on the contrary, an injustice to the dealer, for there are methods by which the remaining parasites, if any, may be rendered harmless, and in this case the dealer could be saved a part of his loss. To judge between those cases in which the carcass is absolutely unfit for food, and therefore to be condemned, and those cases in which the carcass may be treated according to methods which will destroy the remaining but undiscovered parasites, thus rendering the meat fit for food, is a point upon which the expert meat inspector must decide.

Experiment shows that the parasite under discussion (*Cysticercus bovis*) dies about two to three weeks after the death of its host. Three weeks of cold storage would therefore render a light infection of this kind absolutely harmless, and the meat could safely be placed on the block. With the disease known as pork measles the parasites live for a month, so that more care would be necessary in dealing with it.

Many of the abattoirs voluntarily tank for canning certain meats of inferior quality. The heat to which these meats are subjected is not so great as that used in tanking for fertilizers, but as *Cysticercus bovis* can not survive a temperature of 140 degrees Fahrenheit for five minutes, and as the meats tanked for canning are thoroughly cooked, it may safely be asserted that a light case of "beef measles" would be rendered perfectly harmless by the cooking preparatory to canning. The same applies to cases of trichinosis. The parasite of this disease can not withstand a heat of 70 degrees C. (150 degrees F.), so that if trichinous pork is cooked until the entire piece has reached this temperature, and assumed a light gray color, the disease is rendered non-transmissible to man.

The parasite of "beef measles" is killed in twenty-four hours by the action of salt solution, and we have found no case where the parasite of trichinosis has been able to withstand four months in the "pickling vats." In both of these cases it must be remembered that it takes some time for the salt to thoroughly permeate the tissues. It would accordingly not be safe to assume that in a piece of measly beef which had been placed in brine for twenty-four hours the parasites had been killed. The length of time necessary to guarantee the result is, of course, dependent upon the size of the piece of meat. A safe rule is to cut the meat into pieces of any length, but not over six inches thick, and leave them in brine for two weeks.

While the large abattoirs have means at their command by which cases of light infection may be rendered non-infectious, the smaller slaughter-houses are at more of a disadvantage in this respect. Cooking and salting would be possible for some, perhaps all of them, while cold storage would often be out of the question. . . . In some parts of Europe certain meats of inferior quality are allowed on the market under given conditions. One of these conditions is that they must be sold in a specially licensed meat stall or counter, known as the "Freibank" or "Finnenbank," where the true nature of the meat must be made known to the purchaser. Naturally such meats are sold at a lower price than the meats offered in open market, thus enabling many of the poorer classes to purchase meat who can not afford to pay the regular prices. Meats which are absolutely dangerous from a sanitary standpoint are, of course, excluded from these special meat counters, and in some instances the law requires that even those meats of inferior quality, which are harmful in some cases, though not dangerous, must be rendered harmless before being sold.

The German system of the "Freibank" practically results in dividing the meats into three classes: 1. Meats which may be sold in open market, good or first-class meats ("gute oder tadellose Ware," of North Germany, "bankwürdiges Fleisch," of South Germany, also called "bankmässig" or "ladenrein"); 2. A second class of meats which may be sold only under declaration of their true character, in many cases only after having been cooked or salted under official supervision ("nicht-bankwürdig," "nicht-bankmässig," "nicht-ladenrein"); 3. A third class of meats which are unconditionally condemned, and therefore excluded from the market. . . . Objections to the "Freibank" have been raised by some parties, but I am unable to see wherein this system is unfair either to the dealer or to the purchaser, for no one is obliged to buy this meat who does not wish to do so, while any one who wishes a cheaper class of meat can purchase it at the "Freibank" with the full knowledge of the condition of the meat he is buying. It is perfectly safe to use the meat when thoroughly cooked, and the dealer is able to economize in his business. I take the decided stand, however, that it is far better to subject all these meats to thorough cooking or other methods of safeguarding before they are placed upon the market.

SUMMARY.

1. A well-regulated system of slaughter-houses is as necessary to the public health as is a well-regulated system of schools to the public education.

2. Every slaughter-house is a center of disease for the surrounding country, spreading trichinosis, echinococcus disease, gid, wireworm, and other troubles caused by animal parasites, and tuberculosis, hog cholera, swine plague, and other bacterial diseases.

3. The important factors concerned in spreading these diseases are offal feeding, drainage, rats and dogs.

4. These diseases may be greatly held in check and in some cases entirely eradicated in two ways: 1. By a reduction in the number of premises on which slaughtering is allowed, on which account it is urged as all important that there be a segregation of the slaughter-houses, so that all the butchers of any given town will be compelled to do all their killing in a common inclosed and restricted area. In abandoning slaughter-houses, care should be taken to destroy the rats, in order to prevent the spread of infection. 2. By regulating the factors concerned in spreading the diseases: *a.* Offal-feeding should be abolished; *b.* Drainage should be improved; *c.* Rats should be destroyed; and, *d,* dogs should be excluded from slaughter-houses.

5. A licensing of slaughter-houses by the State Board of Health and the employment of an assistant State veterinarian, whose sole or most important duty shall be a sanitary supervision of all places where animals are slaughtered for food, are necessary.

6. The appointment on every local board of health of a competent veterinarian, whose duty it shall be to control the class of meat placed upon the block, is urged. All meats should be inspected at the time of slaughter, thus securing for the local consumer the same guaranty that the National government provides for the foreign consumer and for interstate trade.

7. The prohibiting of the rotting of any kind of stock within the premises of slaughter-houses is advised, as are also State regulations to the effect that when a stock animal (horse, of course, accepted) once enters the premises of a slaughter-house it must never be allowed to leave those grounds alive, but must be slaughtered within two weeks' time.

8. In justice to butchers and as a protection to the consumer, I strongly advocate the introduction of the German "Freibank" in connection with every municipal slaughter-house.

SOME PREVALENT DISEASES OF DOMESTIC ANIMALS IN MARYLAND.

Dr. A. W. Clement of Baltimore, read a paper on "Some Prevalent Diseases of Domestic Animals in Maryland." He said: Tuberculosis is very prevalent among the cattle of Maryland at this time. Such cattle should be dealt with in a nanner which will protect the public from the possibility of nfection. No one appears to have this matter in charge, hence here is no means to prevent the use of the milk from these cows, or the meat when offered for sale by the butcher. When ve have so sure a method of diagnosis as tuberculin by which o detect the presence of tuberculosis in cattle, it should be nade the duty of some one to take the proper steps to protect the innocent public. Rabies exists in the State to a much greater extent than has been supposed. It is a distinct disease propagated only by inoculation. Hence it can not spread unless ntroduced by some one animal afflicted with it. Legal enactnents should be resorted to which will enforce that kind and haracter of cure necessary to eradicate the disease. A proper dog law would largely assist in preventing the spread of rabies, ince the dog is one of the most active to spread it. Many horses have been killed by a disease said to be cerebrospinal neningitis, but the queer thing about it is that there are no erebral symptoms or spinal lesions present. It has been supposed that weeds of different kinds had much to do with the isease, but this has not been proven. It is, however, extremely atal. It affects horses in the stables, in the fields, in winter nd in summer: but probably is more prevalent in the former.

In the discussion which followed, Dr. August Stabler of Montgomery, advocated a law to prevent the spread of tuberulosis, and mentioned instances where cattle evidently disased were sold in spite of every effort to bring the vendor to a roper idea of the injury he was doing.

Mr. Chas. Hartshorne also of Montgomery, said they had made somewhat of a study of rabies down his way, and could ow tell whether a dog is mad or merely indignant. When the ormer is the case he runs with his tail hanging loosely down; hen he is indignant it sticks straight out behind; when he is ightened it clings close between his legs.

Dr. A. C. Abbott thought that special licenses for dairymen ould aid in the work of inspection and prevent the sale of disased milk. Every safeguard should be thrown around the ilk-supply, as it was liable to produce disease at the fountain ead among the children.

Dr. S. S. Maynard of Frederick, read a paper on "Hog Pens nd Slaughter-houses in Towns." He depicted at some length he dangers to public health from the carelessness with which hese were kept; the general filth surrounding them; the retched condition of the cattle in many cases; the feeding of seased offal, etc., to pigs, thus conveying more disease through hem to other animals. Such a condition should not be peritted. It would be better to have a few abattoirs in place of e numerous miserably kept places in which animals were lled to be made into food for men.

Among those who took part in the discussion which arose on these papers was Mrs. Fendler, an active member of the Woman's Health Protective Association of New York. She gave a history of the excellent crusade in New York City against a badly conducted slaughtering system, and detailed the success which attended their efforts.

At 3 P.M. on Friday the Association again convened, and a paper was read by Dr. W. D. Thomas of Baltimore, on

SANITARY CONDITION OF THE PUBLIC SCHOOLS OF BALTIMORE.

His attention was largely given to the outhouses attached to each school. Without exception they were found to be most unsatisfactory and deserving of the most severe condemnation. He thought particular attention should be paid to the overcrowding which exists in many of the schools. Rooms arranged for forty pupils are required to accommodate sixty or seventy at the expense of the health of both teachers and scholars. Proper ventilation is not possible in many cases owing to the close proximity of the water-closets, and the methods employed for changing the air in many instances is simply that of lowering a window above the head of some child, who suffers thereby, in many cases admitting the foul air from a contiguous water-closet to so great an extent that it became necessary to close the window speedily. The result of his inspection showed conclusively that the school-rooms are not properly cared for. Floors are washed but three times a year, and inside painting not done until absolutely necessary; as a consequence, many of the rooms have a besmeared appearance. He suggested that an inspector be appointed, not burdened with the care of other buildings to have charge of the sanitary condition of the buildings and surrounding grounds. To these duties might be added the inspection of suspected infected children and to follow cases of disease existing in the homes of pupils.

The subject was continued by Dr. S. J. Fort of Ellicott City, who read a paper on

OBSERVATIONS ON THE HYGIENE OF THE PUBLIC SCHOOLS OF HOWARD COUNTY.

He said: No matter how wide-awake or up-to-date a board may be, the bucolic mind is still apt to think that what was good enough for the children of the past is good enough for children of today. . . From a hygienic and sanitary standpoint there is not one school in the county in which some fault can not be found and many are absolutely unhygienic in *every* respect. A searching investigation, made some time since by the State Board of Health, shows the pressing necessity of a complete remodeling of at least one-half of our school-houses, of providing a pure water-supply for every school at present unprovided, a stricter attention to the law requiring vaccination, a closer attention to quarantining children from families in which there are cases of infectious or contagious diseases, and provision for properly disinfecting the walls, floors and furniture of the schoolrooms.

At present, so far as I can learn, the teacher is permitted to have the schoolroom swept or scrubbed and incidentally pay for this service out of his or her own pocket; hence while it is done, sometimes with ordinary soap and water, it is only in rare instances if ever that scientific disinfection is practiced and, however done, the floor is the only part scrubbed, successive generations of children using the desks from year to year, each year adding its collection of nasal discharges, sputum and general filth to those of years gone by.

A single drinking cup, one solitary brush and comb, piece of soap, wash-basin, etc., render personal cleanliness a misnomer and hampers the efforts of the teacher to bring about the condition that is said to be next to Godliness, at the same time helping along the dissemination of skin diseases and parasitic insects, to say nothing of more serious diseases that may thus be carried from one to another.

In making the investigation already alluded to, the State Board sent out a list of questions to every teacher in the county and while not all of them replied, enough answers were received to show the condition of a majority and a tabulation gives results as follows: Eight schools in four election districts are overcrowded; ten school lots in five districts are badly drained; seven schools in three districts are badly ventilated: ten schools in three districts have a bad water-supply; eight schools in five districts have bad outhouses; thirteen schools in four districts do not require vaccination; two schools in two districts do not enforce quarantine.

Our county is also distinguished by being one of nine exempted by law from having more than one privy; a law passed in 1894 providing that every school should have two privies, one for each sex, properly protected from the weather and perfectly private, specially exempting Howard County with eight others, to the shame of the school board that then or ever failed to cry out upon such an outrage on common decency.

Notwithstanding this exemption some of our schools have two privies, but there are many with only one and, as seen by the tabulated returns, ten outhouses are reported as being in bad order.

We have a law providing for teachers' institutes annually, during which meetings the teachers could be instructed by experts in the laws of sanitation and hygiene, and the teachers of Howard County as a rule are far above the average, needing only to be shown the way to respond at once. We have a law providing for meetings to be held at intervals for the benefit of the patrons of the schools, at which the same information should be disseminated, bringing them into closer touch with the school authorities and providing opportunities for discussion of ways and means to perfect the hygienic and sanitary arrangements of the schools; this law is also a dead letter. The excuse given for the supineness of the school board is that money can not be had to work with, but I question whether an appeal to the people would not bring a response in hard cash, just as much as I question whether a parsimonious and non-progressive board is not equally culpable with one that steals the people's money; the former is robbing the children of the tax-payers of their birthright, the right to receive a thorough education and with it to have their health protected by every safeguard known to man, while the other only steals money.

Mrs. Daniel Miller of Baltimore read a paper on

AN INSPECTION OF THE BALTIMORE PUBLIC SCHOOLS.

She said: Investigating the public schools was undertaken as part of last winter's work of the Arundel Good Government Club. Our plan was to visit *all* the primary schools and as many more as convenient, resulting in reports from forty-nine buildings, including thirty-six primaries, five grammar, four annex, two colored and two English-German. Of the 137 buildings now in use, 103 are owned by the city and 34 are rented; most of the rented buildings visited were dwelling houses, not only not adapted to school purposes, but totally unfit to be so used. Some of the school buildings, noticeably the *newer ones*, are in excellent condition. In the old buildings, far too many pupils to the air space of the rooms is the rule throughout the schools and in some of the buildings the overcrowding is a positive disgrace. For instance, in Primary School No. 20 102 boys were found sitting on the floor of the teachers' platforms. In Primary School No. 6, 80 children and two teachers were occupying one room, and in Primary School No. 12 38 children in a room eighteen by seventeen feet. In Grammar School No. 10 (where boys occupied the first floor) 300 girls were packed into the second story of an old building composed of eight rooms, about fifteen by twenty feet each. These rooms open into each other with glass partitions and no corridors between the rooms, making them death-traps in case of fire, and impossible to ventilate.

After the overcrowding, the condition of the outhouses seemed the greatest menace to good health. Insufficient accommodation and insufficient separation is common, while close proximity to the schoolrooms and lack of cleaning makes it impossible to open certain classroom windows even in warm weather.

Provision for the disposal of wraps during school hours vary from large and well-appointed cloak rooms to schools having neither halls or corridors (except the outer one, the rooms all opening one into another), consequently cloak rooms are unknown, and in addition to stoves and human beings, the heavy wraps (often damp, sometimes strongly permeated with home cooking) are piled between the children when sitting at their desks or hung many deep on pegs; certainly a most prolific cause for the spread of contagious disease as well as direct danger to children themselves. Seating of school children at desks properly adapted to them is (so far as the committee was able to learn) not considered. Even in the best equipped schoolrooms there is no adjustable desks and no effort seems to be made to adapt desks of different sizes to the pupils, even where these are provided.

The usual means of relieving thirst is from the hydrant in the yard, and through the winter months uncovered buckets of drinking water are brought to the class rooms with one or two cups to a room probably occupied by forty children. In one or two schools only was it found that each child was supplied with its own drinking cup. Buckets of water were also in the rooms for wetting sponges and slates. Is it not feasible to replace this nuisance with some cheap paper and pencils?

As good housekeepers, the committee was deeply interested to find the ordinance for cleaning school-buildings decrees they shall be swept daily and scrubbed three times a year, midsummer, Christmas and Easter. However this ordinance may have originated, the letter of the law is carried out to the present day, as only one exception to it was found.

There seems to be an unfortunate proximity in many cases of schools to saloons. One report mentions seven within two squares, another six, still another five.

SCHOOL LIFE AND CHILDREN'S EYESIGHT.

Dr. Hiram Woods of Baltimore, read a paper on "School Life and Children's Eyesight." In company with Dr. H. Harlan he had made a plan for the examination of the school children's eyesight. This was adopted by the Baltimore School Board. The examination was systematically made, and in 1895-6 53,06 children were subjected to the examination; of these, 43 per cent. had normal vision in each eye, and 17 per cent. fell below that. During the last session 39,241 were examined, 16 per cent. fell below and 52.5 per cent. had normal vision. There is a necessity of a modified curriculum for children with defective vision, but not too defective to permit their getting an education. The number of these children is not inconsiderable. Subjects of every-day use should be taught in such cases. Books with large clear type should be provided. Otherwise they must grow up in ignorance. They should have three hours for recreation, eight hours for sleep, and yet rise sufficiently early in the morning to reach school without being unnecessarily hurried. Blinding and sick headaches are the result of improper light in the school, or not enough light. This is accompanied by pain in the head and partial blindness. The causes are also often the result of other conditions, hence it needs the most guarded examination to enable one to know just what is producing this trouble. He exhibited forms of desks and chairs to show how often the child is wrongly seated, with the desk too high or too low, not a proper slant, etc., not proper support for the back.

In the evening a joint meeting of the Association with the Medical and Chirurgical Faculty of Maryland was held in Levering Hall, Johns Hopkins University. Subject, the "Sewerage of Baltimore."

Dr. Jas. F. McShane, Health Commissioner of Baltimore, read an abstract of his report of the "Sewerage Commission."

The next paper was

THE RELATION OF TYPHOID MORTALITY AND SEWAGE

by Dr. William Osler, professor of medicine in Johns Hopkins University. His text was the trite statement that typhoid fever is the sanitary index of a city. He considered it under three headings. 1. The mortality from typhoid fever has progressively declined with improvement of sanitary conditions. In 1838 in England, 1228 persons died of typhus and typhoid fevers per 1,000,000 living. Twenty years later this was reduced to 918; in 1878 to 306 of typhoid and 36 of typhus; in 1892 only 137 died of typhoid, 3 of typhus per 1,000,000 of living. In London the death rate per 1,000,000 of living was 307 in 1869; in 1892 it was 102. Three factors have been concerned in this extraordinary saving of life, the cleansing of towns, the purification of water-supplies and the introduction of good sewers. 2. The death rate from typhoid fever forms an accurate measure of the efficiency of sewage removal and the pureness of the water-supply. A tabulated statement of the death rate of sixty-five cities from typhoid, during five years, 1890 to 1894, grouped in seven classes, shows in class 1, comprising thirteen cities, the rate was under 10 per 100,000, but contains no American city. In class 7, comprising thirteen cities, the death rate was over 60 per 100,000, and all are in this country except Milan, Cairo and Alexandria. The lesson of several European cities is worth reading. Munich had in 1857, 291 per 100,000 and kept that high until 1865, when there was an improvement in the water supply and a reduction of almost 50 per cent. After the introduction of the new system of drainage the mortality was still further reduced, and in 1887 was only 10 per 100,000 of the inhabitants. 3. Baltimore has a typhoid fever death rate of a fairly well watered but unsewered town. During the years 1893-94-95-96, 908 persons died of this disease, a yearly average of 227. Prior to the introduction of a good water-supply the death rate was 74 to 80 per 100,000 of the inhabitants, now reduced to about 41. Good water alone is not sufficient, as shown by the experience of the cities of Dantzig and Stockholm. In the latter the death rate from typhoid fever fell *pari passu* with the number of meters of sewers, from 51 per 100,000 in 1877 with 937 meters of sewers, to 17 per 100,000 in 1887 with 65,709 meters of sewers. We may confidently expect with the completion of a good sewerage system the present death rate of Baltimore, about 40 per 100,000, to fall to that of cities of the first class, from 4 to 8 per 100,000 inhabitants. What does this mean in cold figures? That 204 persons died in Baltimore last year of typhoid fever? The loss to a community of a person in the prime of life may usually be placed at $2000. The total funeral expenses would amount at a low estimate to $5000. About 12 per cent. of those attacked die, so that the total amount of cases of typhoid fever last year in the city may be placed at about 2500. The loss in wages at $1 per day during the illness may be estimated at over $100,000; nursing and doctor's bills estimated at the low rate of $25 per case, gives $62,500, a year's fever bill of about $575,000 against the city of Baltimore for one disease, a sum sufficient to pay the interest on the most expensive plan presented by the commission. The penalties of cruel neglect have been paid for 1896, the dole of victims for 1897 is nearly complete, the sacrifice will number again above 200. We can not save the predestined ones of 1898, but what of the succeeding years? They will be of the fairest of our sons and daughters; they will not be of the very young or the very old, but the youth in his bloom, the man in the early days of his vigor, the girl just waking into full life, the young woman just joying in the happiness of her home. It is not likely that we can abolish typhoid fever completely, as we have abolished typhus, but we can reduce it to a minimum, and if the experience of other cities is worth considering, this will be effected by the introduction of a complete system of sewerage; and, moreover, the total cost of the plan, however elaborate, however costly, would be fully reimbursed in the course of a few years by the saving of life and of unnecessary expense in typhoid fever alone.

Prof. WM. K. BROOKS of the University, delivered a lecture on the

INFLUENCE OF CRUDE SEWAGE UPON ANIMAL LIFE IN THE BAY.

This was in connection with the adoption of the plan for emptying the sewage into the bay. He gave a description of the oyster and its habits, explaining how it plays the part of a filter, every oyster constantly filtering water through its gills. During this process all organic matter is filtered out of the water by means of the oyster's gills. These microscopic organisms in place of passing through the gills are caught and drawn into the stomach, where they are digested. Very many germs may be found in transit from the gills to the stomach. It has been found that the dumping of sewage in so vast a body of water as the Bay would obviate any danger of contamination through oysters. Many interesting experiments have been made in England to ascertain how long disease germs would live in sea water. It was shown that typhoid fever and cholera germs may live three weeks or more, and may be spread through oysters. The oyster itself is not injured by harboring these germs.

Dr. GEO. H. ROHE of Baltimore, read a paper on

METHODS OF SEWAGE DISPOSAL.

The Doctor alluded to the different points brought out in the Report of the Sewage Commission and said: I have no hesitation in agreeing with the recommendation of the consulting engineers, that despite the greater primary cost of the filtration method, the disposal of the sewage by this method is "the best solution of the problem for all time." Surely the successful experience of the City of Berlin with its 1,800,000 inhabitants is an object lesson worthy of consideration. The Commission has shown, that land in abundance and of the most favorable character for the disposal of sewage, can be obtained within eight miles of the city. The cost of this land as estimated is only about 65 per cent. of that paid by the City of Berlin. With the more scientific construction of sewers now possible, and the exclusion of all storm water, the success of the disposal of the Baltimore sewage by filtration should be much greater even than it has proven to be in Berlin, Paris, or any other community where the method has been adopted.

The estimates of cost, made by the consulting engineers and the Commission, are merely approximative. I am inclined to the opinion, however, that the receipts estimated from the selling of crops from the filtration field in the Baltimore system are fixed at too low a figure entirely. The estimates allow for an income of only $3 per acre from the sewage fields. In 1887-88, the sewage farms of Berlin were partly managed by the municipality, and partly rented to market gardeners in fields of two or three hectares (five to seven and a half acres); the rent obtained was on the average 200 marks ($50) per hectare. The portion of the sewage farms managed by the municipality returned an income nearly the same, there being only ten cents per hectare difference in the receipts between the fields managed by the municipality and those rented. It has been found that not only in Berlin, but in Paris, in Dantzic, and in numerous towns in England, the rental value in sewage farms has constantly increased. I have therefore no hesitation in saying, that the greater primary cost of the filtration system over the dilution system would be to a considerable extent offset by the increased value of the land used for filtration. But it seems to me, that the adoption of the dilution project would be, as it has been in nearly every instance where the conditions were similar to, or approached those in and around Baltimore, an experiment likely to result in failure. The filtration of sewage, on the other hand, is not an experiment, but has been always, where adopted, a permanent and final solution of the problem.

Prof. W. H. WELCH of Johns Hopkins University spoke of the relation of sewage to public health. He considered the soil the place which sooner or later all organic matter reaches. It is one of the greatest laboratories in the world, but is only capable of doing this work to a limited extent. Among the dangers from contaminated soil are the gaseous emanations from polluted ground. Another and very serious danger is that of polluting the drinking water. There are various ways in which disease-producing germs can reach us from a contamination of the soil. Typhoid fever, cholera and the diseases of infancy thus almost invariably result. Cholera frequently attacks cities without a proper system of sewage, but has never been able to gain a foothold in cities that are well sewered. Pure water and good sewerage enable a city to defy cholera, etc. Health statistics everywhere give the practical results of a purification of the soil by sewerage. His remarks were well illustrated by a number of charts showing the relative rates of disease and mortality in cities as they were more or less well sewered.

Dr. JOHN S. FULTON closed the discussion with a paper entitled "Will it Pay?" He argued that the expenditure of the amount of money required, would be economic and wise. Cholera cost in 1884, Italy $7,680,000. In 1878, yellow fever cost the United States $100,000,000 and 15,934 lives. The annual tax by typhoid fever is $527,250,600. Typhoid mortality in sewered cities is to that in unsewered cities as 1 to 4.5. He explained the cost of sickness and death from this disease, the loss not only of lives, but time and general health to those afflicted and the loss to the State, and showed that Baltimore would save annually $1,102,215 by reducing the typhoid fever alone to the lowest possible point. This is an annual visitant, not, like cholera, an occasional one. The introduction of a proper sewerage system would positively enable this reduction to be accomplished. At the same time other forms of disease would be reduced and the general rate of mortality be correspondingly lessened.

The subject having been concluded, Dr. G. LANE TANEYHILL, Chairman of the Committee on Health of the Commissioners of the Public Schools of the City of Baltimore, spoke in defense of that committee and called the attention of the Public Health Association to the fact that the members of the school board are not responsible for the insanitary condition of the schoolhouses, but that that duty devolves on the health commissioner and the inspector of buildings. He outlined the work already done toward alleviating existing conditions and the difficulties accompanying such work, and said: "How to maintain an educational system that fits perfectly public needs is one of the most important problems that confront the municipal reformer," but to take a dark and ill ventilated, if at all ventilated, old building, and introduce modern sanitary conveniences and improvements is a task in this city that may well puzzle the best informed sanitarian. Many of these antiquated buildings are so deficient in the proper provision for light that Drs. Harlan and Woods, the oculists appointed by the school board to inspect the eyes of the children, were compelled to condemn many of the rooms as unsuitable places for study. Even the proper provision for the general health of pupils at this, the most important period of their young and growing brains and bodies, can not in many of these buildings be made. The contracted space alloted for the yards was apparently only equaled by the contracted appropriations, when many of these buildings were erected. The committee has found it to be impracticable to supply the crying need, "enforced ventilation" in these buildings on account of their faulty construction. This system is the only system now advocated by those who are considered experts in this branch of science; it includes the use of *fans* by which moderately warmed air is forced into the schoolroom in such quantities as to give to each pupil 1800 cubic feet of air per hour to breathe. One member of the committee has seen this system work admirably in New York City. It is highly commended by school commissioner Buckley of that city. In Baltimore we have it in three or four buildings.

In conclusion, Dr. Taneyhill remarked that during the seven or eight months of the existence of the new school board, many other questions had been considered by the committee on health and the board in general, such as a more sanitary manner of supplying drinking water to the pupils, possibly the use of a spigot in each class room; the changing of desks to suit the height of the children by individual measurements; a traveling inspecting committee is now in other cities examining the kind of desks most nearly adapted to the present necessities; the text-book committee had ordered the unclean slates to be dispensed with and have substituted the unglazed paper pads;

the floors have been more frequently washed; the urinal troughs flushed, the privies ventilated as well as possible, and two sanitary inspectors are continually engaged in looking after the immediate wants of the schools as rapidly as is in their power. The over-crowding, the proper lighting, the sufficient ventilating, the proper removal to a sanitary distance of the privies, and the prevention of the proximity of the saloons can best be remedied by a liberal appropriation by the city council for the building of modern sanitary schoolhouses with ample yard space. Today this city is in urgent need of at least fifty such buildings.

PRACTICAL NOTES.

Dyspepsia with Flatulence.—Tincture gent.; tr. valer.; tr. nuc. vom. āā 4.0; chloroform, xx-xl gtt. Ten to twenty drops in water before meals.—*Memorabilien*, January 18.

Sublimate in Erysipelas and Meningitis.—Voskressenesky reports much better results with sublimate in erysipelas than with any other remedy; sixty-five cases. The surface was painted with an alcoholic solution at .5 to 1 per cent.—*Nouv. Remèdes*, January 24.

To Avoid the Trickling of Serous Fluid after Abdominal Paracentesis, Gumprecht applies a small cotton tampon and covers it with a couple of folds taken up in the skin, held in place with adhesive plaster. The skin can be painted first with collodion if desired.—*Therap. Monatsh.*, 1898, No. 2.

Menthol in the Treatment of Varicose Ulcers of the Legs.—Simonelli recommends a powder composed of fifty parts of chlorid of sodium and five parts of pulverized menthol. Both substances should be in the form of an impalpable power, and intimately admixed.—*Medicine.*

For Gastric Cough and Hiccoughs.—A. Robin recommends a teaspoonful every hour of the following, never taking more than a third of the whole during the twenty-four hours: Potassium cyanid, 5 centigrams; syrup of morphin and syrup of orange flowers, āā 75 grams.—*Semaine Méd.*, February 16.

Subcutaneous Injection of Quinin.—Stofella recommends for this purpose quinin muriaticum, which dissolves in water heated to 40 degrees C. (two grams to 10 c.c. water at 40 degrees). There is no local reaction if antiseptic precautions are observed. Dose: One Pravaz syringe, equal to 0.2 quin. mur.—*Wien. klin. Rundsch.*, January 2, *Vide* JOURNAL, January 29, page 268.

Aspiration Treatment of Inguinal Bubo.—R. Hahn reports 70 per cent. out of 200 cases cured by aspiration of the contents of the bubo, requiring no further operation (75 per cent. with one single aspiration). The cavity is then rinsed with salt solution and a gauze pad applied, held with a zinc plaster and compressing bandage outside to reduce the distended skin and prevent the accumulation of more pus. If the deep-lying glands are found to be involved total ablation is necessary, but otherwise aspiration will be found sufficient.—*Mitth. a. d. Hamburg. St. krk. anstalten*, i, 3.

Mechanical Process to Favor the Expulsion of Sputa.—In cases of myelitis in which the muscles of the thorax are paralyzed, bronchial complications prove exceedingly distressing, as expectoration is difficult. Reusner describes a method of relief which can be easily taught to the attendants, and has proved most effective in his practice. The aim is to reinforce the diaphragm and abdominal muscles in their effort to expel the accumulations in the bronchi. The patient on his back, bladder emptied, the attendant on the right side, the latter applies his right hand to the abdomen, pressing progressively downward into the small pelvis, stretching the skin. The left hand is then applied outstretched on the hypogastrium, the pressure sufficient to enable the pulsations of the aorta to be felt. The compression is continued as the patient coughs, and relief is immediate.—*St. Petersb. Med. Woch.*

Prevention of Contagion of Measles.—Ausset asserts that measles is contagious during the pre-eruptive stage, but that contagion can be prevented then and later by destroying the germs in their stronghold, the mouth, nose and eyes. He uses for the purpose copious irrigations twice a day with two quarts of fifty per thousand solution of Labarraque's solution, with boricated water for the eyes, although he admits that a spray of mentholized oil might be equally effective. Six cases thus treated at the hospital were not followed by any contagion, although they were not isolated in the least, but mingled freely with the other children.—*Nord. Méd.*, v, 81.

Formalin Disinfection of the Field of Operation.—None of the disinfectants in vogue reach and destroy the germs that have penetrated below the surface of the skin, and yet these are a frequent cause of infection. Professor A. Landerer reports that he has succeeded in securing absolute bacteriologic asepsis with a 1 per cent. solution of formalin applied on an air-tight compress, after the usual preliminary toilet, and left from twelve to thirty-six hours, changing once or twice. The vapors penetrate and kill the germs in their remotest strongholds, and perfect prima intentio is secured.—*Cbl. f. Chir.*, February 26.

To Locate Foreign Bodies by Radiography.—Morizes secures extreme accuracy with four small adhesive discs of lead. The patient placed between the tube and the screen, one of the discs is placed over the spot where the foreign body is seen, and another on the side toward the screen in a straight line with the first disc and the foreign body, so that all three cast but one shadow. The patient is then turned at an angle and the two other discs are applied in the same way on another straight line, also passing through the foreign body. The intersection of the two lines locates it with precision.—*Presse Méd.*, February 12.

Improved Local Anesthesia.—The Oberst method of anesthetising fingers and toes, described in the JOURNAL, February 26, page 496, has been found equally applicable to operations involving the entire hand or foot, and is urgently recommended by Kraske-Manz in the *Cbl. f. Chir.* of February 19, who report several cases operated, including some serious cases of metatarsal caries, requiring an hour's work, with the removal of the toes, metatarsal and cuneiform bones. The blindfolded patient conversed quietly, feeling nothing of the operation, but two to three minutes after the ligature had been removed, could feel the slightest touch on the toes. A 1 per cent. solution is used; 0.02 to 0.025 gram, to 0.05 to 0.06, but Manz suggests that possibly a stronger concentration might shorten the fifteen to twenty minutes waiting time. He adds that possibly the compression of the nerve, stagnation of the blood, etc., may all be factors in the anesthesia secured, which he believes is even applicable to an entire limb.

Operations to Remove Syphilitic Cerebral Tumors are justified, Schlesinger asserts, when the tumor is stationary and does not yield to antisyphilitic treatment, easily accessible and presumably of small extent. An operation is especially indicated if the tumor grows worse, unchecked by specific treatment, or if Jacksonian epilepsy develops, even if the tumor retrocedes. He considers it counter-indicated by the presence of basal or extensive spinal syphilis, extreme weakness, or amyloidosis. He describes a case operated on with the rare symptom of isolated paralysis of the hypoglossus unaccompanied by paralysis of the facialis. The gumma was in the dura, on the left central convolution, the size of a "gulden." During the removal the right facialis twitched and the right half of the thorax did not join in the act of respiration. There was hernia of the brain later through the drain opening, and right hemiplegia, which gradually subsided. He concludes by urging the necessity of sparing as much of the cortical tissue as possible, to prevent permanent paralysis.—*Wien. klin. Woch.*, January 27.

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SATURDAY, MARCH 26, 1898.

SOME MEDICAL QUESTIONS OF A POSSIBLE WAR.

Now that war talk is rife and it seems a little more than merely possible that the "dogs may be let loose," to use a well worn figure of speech, it is in order to consider certain medical problems that are inevitably suggested by the state of affairs. If we are to be rushed into a war with Spain at the very close of the healthy season on the island of Cuba, it would appear probable that hostilities will either have to be limited to the sea or if carried on by land will be complicated with some very serious sanitary questions, at least during a portion of their continuance. What naval warfare will be with modern ships and guns is very largely a question for the future to decide, the little experience gained by a single engagement in the China-Japan struggle hardly being enough for any one to generalize from to any great extent. One thing seems probable, that is that the mortality will be either slight or very great, that modern naval iron-clad vessels will be very likely to either fairly protect their crews or prove their coffins. There will not be, or should not be the splintering of wood that in the old-fashioned oak-built ships contributed so largely to the minor and sometimes the major casualties of a naval engagement. There may be, however, more than an equivalent in flying bolt heads and rivets and splinters of steel, and the danger of fire where there is anything combustible to burn is enhanced by the tremendous heat produced by the impact of modern projectiles on resisting armor. There has been only one person who has given a graphic account of his experience in a large modern ironclad under perhaps exceptional conditions of exposure to the fire of modern high powered artillery, and he shortly after died, insane apparently from the effects of the shock to his nervous system. This is a factor also to be reckoned with; it may be not a very serious one on the whole, but this also is one of the medical problems the future will have to decide. Judging from the war game as played by naval officers in their schools of instruction in naval tactics, the anticipated ratio of casualties in loss of ships and lives must be very large.

It is not, however, alone in the matter of great-gun performances that we meet with questions of medical interest; the small-arm wounds in a future war may also present us with some new experiences and raise new questions for military surgeons and sanitarians to consider. It is well known that nearly all civilized nations have within the last few years reduced the caliber of their military rifles so that at the present time it is hardly greater than that of the despised "22" pistol, of which a Western pioneer remarked that if any one shot him with it and he ever found it out he would give him a good thrashing. The modern steel-coated bullet has within certain ranges a tremendous effect on certain parts of the body, but in a very large proportion of cases, probably a majority, the immediate effects of the wound it produces are slight. In a strike riot in England not very long ago a miner was shot in the fleshy part of his leg and was entirely unaware of it till, after all was over, he felt a slight irritation that led him to realize that his limb had been completely penetrated by a bullet. The English troops on the Indian frontier found the Lee-Mitford bullet altogether inefficient to stop a charge of fanatical mountaineers, and learned to make them more effective and infinitely more deadly by filing off the steel point. The Indian government taking the hint, invented the Dum-Dum bullet with a soft point which strips off its steel cover and makes a fearfully ragged wound, and is virtually an equivalent to the explosive bullet prohibited by the Geneva convention. Russia is said to have recently adopted a similar projectile, and if this becomes general the wounds of future wars will be more formidable than ever before. The English government seems to be aware of this fact, and has devised a bullet to obviate some of the objections that would be surely raised were she to introduce her Dum-Dum projectile in any conflict with a civilized nation. It is steel cased throughout but has a cup-shaped depression instead of the soft point; it is said to "set up" a little and sometimes split its casing, but this, it is claimed, is a very different thing from the effect of the Dum-Dum projectile or of explosive bullets generally. What Russia will do is yet to be seen, but her reported adoption of the soft-point bullet is a relapse toward barbarism, and if allowed to go without protest will do much to render nugatory all the humane regulations that have been adopted by international agreement to mitigate the horrors of war. Even the proposed English "Mark III" bullet suggests strongly a modified "express" projectile intended to make up for the small caliber and to aggravate the effects on the victim. It is a serious question whether there ought not to be a new Geneva convention to re-regulate these and some other matters, when civilized nations seem to be trimming their course dangerously near the limits of savagery.

In any case military and naval surgeons of the next war, whenever it may be, will have to face some new problems. The effects of modern projectiles, and the care of the wounded in naval actions, are two of the most obvious of these, but perhaps others as yet unforeseen may arise that will sink these into comparative unimportance.

In the question now at issue in a case of hostilities the sanitary problems on the Island of Cuba will be many and full of interest. The march through Spain from Cordova to Madrid will no doubt furnish much material of interest for the medical historian.

SEXUAL DIFFERENTIATION AND THE PROCESS OF FERTILIZATION IN THE HEMATOZOA.

A brilliant investigation into the biology of certain hematozoa infecting several species of our American birds, especially the common crow, carried on in the clinical laboratory of the Johns Hopkins Hospital, by MacCallum and Opie, and recorded in detail in the current number of the *Journal of Experimental Medicine* (Volume 3, No. 1, 1898), has lead MacCallum to make certain observations upon the sexuality and the sexual processes of these parasites which promise to be of far-reaching importance in solving the problems surrounding these biologic phenomena in various hematozoan species, including the organisms of human malaria. The three papers in which these writers describe their studies in avian malaria are valuable contributions to the comparative pathology of hematozoan infections and are well worth careful consideration. The balance of the work is, however, eclipsed in MacCallum's second paper ("On the Hematozoan Infections of Birds," *loc. cit.*; pp. 117-136) which contains the account of those processes interpreted as sexual in character.

In patiently studying the various forms presented by *Halteridium* (the most common species in crow's blood) MacCallum differentiated two distinct kinds of intra-cellular parasites, a granular and a hyaline variety. It was found that the granular forms never became flagellated, while the formation of flagella was constant in the hyaline bodies. The process of flagellation was carefully watched in the hyaline forms, in which four or more of these motile appendages were suddenly projected from the body of the spherical mass after it had burst from the confines of the enclosing red blood corpuscle. As other observers have noted, the author also found that the flagella ultimately became detached from the mother cell and swam about freely in the blood plasma. Pondering upon the phenomena presented by the varying forms of this parasite the idea that some of them might signify more than mere polymorphism finally led to the observation best described in the author's graphic language: "Two forms lay at some distance from one another separated by plasma and a few corpuscles. The granular form happened to escape from the corpuscle first and lay perfectly quiet beside the free nucleus and the shadow of the corpuscle. Soon the hyaline body, becoming greatly agitated, burst from the corpuscle and threw out active flagella, which beat about for a few moments and finally tore themselves loose. Then came the acme of the process. One of the four flagella passed out of the field, but the remaining three proceeded directly toward the granular form, lying quietly across the field, and surrounded it, wriggling about actively. *One of the flagella, concentrating its protoplasm at one end, dashed into the granular sphere, which seemed to put out a process to meet it, and buried its head, finally wriggling its whole body into the organism, which again became perfectly round.*" This process was repeatedly verified by the author and by other workers in the Johns Hopkins Hospital, among whom may be mentioned Welch, Thayer, and Barker.

It is scarcely possible to contemplate the picture thus accurately drawn by MacCallum and not approve in his view that the whole phenomenon is a sexual one, that the granular parasite is the female and the hyaline the male organism, that flagellation is a form of spermatogenesis, and that the final act is nothing more nor less than a sexual fertilization. The only wonder is, now that the whole matter is so lucidly set before us, that the true interpretation should have been so long delayed. It is, however, a matter of patriotic pride that this important discovery should have been made by an American student of medicine, working in an American laboratory.

Since completing his studies upon the avian hematozoa, MacCallum has been so fortunate as to discover, in a case of estivo-autumnal malaria in a woman, essentially the same process as was noted in the crow's blood. The malarial crescents were seen to become spherical, one form flagellating, the other remaining quiescent. The flagella were thrown off, and swarming about the quiet sphere the act of fertilization ensued essentially like that noted in *Halteridium*.

Thus it seems that we are at last to have set at rest the mooted points in the biology of the malarial hematozoon which have centered about the crescentic and flagellate forms of the parasite. Naturally these intensely interesting investigations have not disposed of all the problems in the life history of the hematic sporozoa, but a new impulse has been given which can not fail to be fruitful in its results.

These very important researches furnish another instance of the value of comparative pathologic and experimental methods in connection with the investigation of human diseases.

POST-GRADUATE LECTURES AT HOME.

Many Eastern medical societies have adopted a new plan of increasing their membership and the interest in the meetings. Once a month, or at longer intervals, they invite some leading physician or specialist who has become expert on some topic to give them a lecture, of an hour or less, and then resolve themselves into a general meeting, in which each one becomes a tutor, or inquirer. These are called post-graduate courses at home, where the lecturer comes to the physician, and are becoming very popular in many sections. Prominent medical men, who have made a special study of some topic, are pleased to address medical societies on their favorite themes. As a gratuity their expenses are paid, and they are entertained by the society. The society in this way is enabled to hear the best men and the most advanced studies along new lines, at a trifling cost, and the society becomes the center of new interest, in which all participate. Physicians in Philadelphia have been very generous, and encouraged the country and outside city societies to invite them to their meetings. The result has been very helpful to both the society and the lecturer. Boston medical men have been prominent for years in accepting all invitations of this kind and many Eastern societies boast of having heard at home all the leading medical men of Harvard and other Boston schools. New York and other large cities, have not been so prominent in this field, probably because the country and inland societies, have not the same interest. As an example of the practical working of this new feature of society work, the following is given. The B. city society, nearly a hundred miles from Boston, had six lectures in 1897, from leading physicians in Boston and elsewhere. Two were surgical topics with illustrations of cases; two were on therapeutics, new remedies and means of treatment; one was on rheumatism; and the other on fevers. The society paid, in traveling expenses and entertainment, $81 for these lectures, and, as the membership was over one hundred, the individual expense was less than a dollar each. The lecturer had an opportunity of addressing a class of practical hard-working men at their homes, enlarging his acquaintance, and usually securing consultations, and above all having a good opportunity to test the value and acceptance of his personal views and teachings. The society also had the pleasure of hearing the leaders in the different lines of study, and of having some measure for comparison of their own attainments. The results have been an increased interest in the society meetings, and a larger attendance with more care in reporting cases, and better papers read. Some of the subjects have caused a great deal of study and dissensions. The lecture on rheumatism was followed by two interesting meetings on this topic.

This is clearly a most practical advance for all local medical societies, and can be followed up almost indefinitely, with the best results. The tendency to egotistic provincialism would be checked, and each society would have new interest to gather and exchange experience.

Nearly all the leading men in the profession would take pleasure in meeting local societies, and giving them the result of their work. It would be far more practical for all medical men to have lectures on their daily work, and become familiar with the advanced studies of leading men, than to subscribe to literary lectures and concerts. Every society of twenty or more members could secure four or five most practical lectures during the winter, at a cost but little more than an ordinary ticket to the theater. Not only the society but each individual would receive great personal advantage from it.

CONCERNING THE PARATHYREOID GLANDS (SANDSTRÖM), OR THE EPITHELIAL BODIES OF THE THYREOID (KOHN).

The presence of isolated glandular bodies in the neighborhood of the thyreoid gland has long been known. Up to the year 1888 all such bodies were described as accessory thyreoid glands, or as masses of lymphadenoid tissue. By accessory thyreoid glands are to be designated nodules of thyreoid tissue which at some time of development became separated from the main part of the gland, but still appear to be structurally similar to it. The accessory thyreoid glands are inconstant as to occurrence, and are marked by great uncertainty as to position. They have been found at all levels, from the superior hyoid region to the aortic arch.

The parathyreoid gland is a term applied to independent structures remarkably constant in number and position, which at no stage correspond in structure to the thyreoid gland, and which appear to have a function of their own.

These structures, although in all probability noticed by previous observers, as for example VIRCHOW, were definitely discovered by SANDSTRÖM in 1880,[1] who found that man and several other mammals possessed small epithelial glandular organs near or in the thyreoid. In man he described two parathyreoid glands on each side on the posterior surface of the lateral lobes, near its lower margin, one above and one below the inferior thyreoid artery. They were invariably separated from the thyreoid by a layer of connective tissue. The histology of these bodies varied somewhat, but it tended to conform to one of the three following main types: 1. A condensed mass of epithelial cells, traversed by a capillary network; 2, a cellular reticulum, in the meshes of which were blood vessels and connective tissue; 3, small follicles in a connective tissue framework. D. A. Welsh[2] has been able to confirm these observations as far as they relate to the human parathyreoid, and he emphasizes strongly the position and accuracy which characterized Sandström's earliest description of these structures in man.

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[1] Upsala Läkareforeningens Förhandlingar, 1880.

Sandström ventured the conjecture, based upon purely anatomic reasons, that the parathyreoids were embryonic remnants of the thyreoid, destined to form fresh thyreoid tissue when required.

In 1895 Kohn[3] published an extended study of these glands in the cat and other animals. He made the important addition to Sandström's work that there are constantly present two parathyreoid glands on each side in the cat, dog and rabbit. Previous observers had recognized only one on each side, and the significance of Kohn's work is therefore at once obvious, because these animals were the ones chiefly employed for experimental research. He insisted that they are structures morphologically and functionally independent of the thyreoid, and he therefore proposed that they be called the epithelial corpuscles of the thyreoid, distinguishing them further as external and internal according to their relation to the lateral thyreoid lobes. L. R. Müller[4] in 1896 examined the thyreoid and adjacent glands in twenty-two cases in man. His results agree in the main with those of Kohn, but he states that he could not estimate the frequency of their occurrence in man as he found they were easily overlooked.

It has long been observed that various species of animals present striking and unaccountable differences after extirpation of the thyreoid, and this may occur even in the same species. It was thought that these variations corresponded to differences in metabolism in different animals. Flesh-eating animals seemed to suffer most acutely, while the herbivora suffered less, the omnivora occupying a middle position. In 1891 Gley[5] began the publication of a series of papers in which he offered a different explanation. He pointed out that in the rabbit the external parathyreoid is quite distinct from the thyreoid and situated about .5 cm. below it, whereas in the dog the parathyreoid was closely connected with the thyreoid. He investigated the effect of removing both the thyreoid and the parathyreoid in the rabbit, and out of sixteen rabbits only two survived beyond a week. The remaining fourteen showed a rapid train of symptoms and fatal result. By the end of 1893 Gley had performed complete thyreoidectomy in fifty-five rabbits and only twelve survived. He then showed that in some animals, even the dog, it is possible to remove the thyreoid and leave the external parathyreoids intact. He describes this delicate operation in ten cases, and of these only two died. Subsequent removal of the parathyreoids in the same dogs led to their rapid death. Since that time these results have been contradicted by some investigators, supported by others. Among the more important of the researches bearing upon this point may be mentioned those of Vessale and Generali,[6] who removed all four parathyreoid glands, leaving the thyreoid *in situ*. They performed this operation on ten cats and nine dogs. In the cats nine died before the tenth day, after suffering from the characteristic symptoms ordinarily observed after thyreoidectomy; of the nine dogs all died within eight days.

It may be concluded that at the present time no definite statement can be made concerning the functional importance of the parathyreoid glands. Experimental physiologists are still hard at work attempting to demonstrate the relation of the functions of the parathyreoid to the thyreoid body. In the meantime it is well to bear in mind the existence of these peculiar epithelial bodies, now that the study of the thyreoid and other ductless glands is attracting so much attention, because it may be found that these bodies, which are constant, embryologically and structurally different from the thyreoid, may have important functions, the exact nature and the relations of which to those of the thyreoid are as yet not understood.

THE WEEK IN CONGRESS.

The sanitary bills have been up for consideration in the Senate. Senators Sewall of New Jersey, Vest of Missouri, and others took part in the debate. Senator Spooner on the 16th submitted anew his bill, this time, in order that it may be properly reached, as an "Amendment" to the Caffery bill, which action gives it place equal to that of the committee's amendment, which, as will be remembered, struck out all after the enacting clause, etc., etc.

The Marine-Hospital lobby have been active, as also the Mississippi auxiliary, with Acting Assistant Surgeon Robbins, M.-H.S., of Vicksburg, at the fore in the interest of the Caffery bill. Dr. Doty, Health Officer of New York, and Dr. Wingate of Milwaukee, Chairman of the Association Committee, have also been present much of the time, and have advocated the passage of the Spooner bill, which has daily gained friends as its scope and extent become better understood. Let us understand that the Caffery bill is a quarantine bill, and nothing more; the Spooner bill is a broad sanitary bill commensurate th the importance of the subject and the great terests involved. The latest information we have ceived is, that the CAFFERY bill is practically dead, t our friends must keep pounding its corpse. Then ere will be no question about it.

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[2] Journal of Anatomy and Physiology, 1898.

[3] Arch. f. mikr. Anatomie, 1895.

[4] Beiträge zur path. Anatomie, Ziegler, xix, 1896.

[5] Archives de Physiologie, 1892-3.

[6] Archives italiennes de biologie, 1896.

CORRESPONDENCE.

The Serum Treatment of Tuberculosis.

ST. LOUIS, MO., March 21, 1898.

To the Editor:—I have read with great interest Dr. Wax- m's "Report of Cases of Tuberculosis treated with Anti- thisic Serum, T.R. (Fisch)." It is well that all sides of this bject should be presented, as only by the collective investi- tion of numerous observers working independently, in differ- t places, and under diverse conditions, can any satisfactory cision be arrived at. With that end in view, Messrs. Milli- n & Co., have been consistent in impressing on all users of e serum (Dr. Waxham himself not excepted), their desire at reports of cases should be made to the medical press, ether the results be "good, bad, or indifferent." While ports favorable to the serum can not fail to be gratifying, ose of failures are equally important, as a means of drawing ention to sources of error on either side.

On reviewing Dr. Waxham's cases, it appears to me a very od thing that he has published them, since they serve as a od text wherefrom to preach more efficaciously what has en laid down *ad nauseam*, viz., that so far as our present owledge goes, no good whatever can be with any confidence ticipated from the use of the serum in cases in the third stage the disease, nor even in the late second stage, especially if ey show mixed infection.

Now, in no case does Dr. Waxham state whether the examin- ion of the sputum showed the presence of other micro- ganisms than the tubercle bacilli in any appreciable numbers; t it is a fair inference from the clinical reports, notwith- nding the absence of temperature records, that there *was* ixed infection in cases 2, 3, 4, 5, 6, 7, 9 and 10; while not a gle case is in the first stage, and only No. 8 (apparently), and ssibly No. 1 in the second. So far therefore, from their ing, as Dr. Waxham states "fair ones with which to judge e value of treatment," they are nearly all excluded *ab initio* om that category.

In proof that this is no *ex post facto* objection, I may state at I have recently returned from a tour of hospitals in the rtheastern States, where I have had the privilege accorded e in many of them of selecting for experimental treatment th the serum the most suitable cases available. I am sure at these members of the visiting staff, say of the Massachu- tts General, the Carney and the City Hospitals in Boston, the ontefiore Home, the Columbus, City and Seton Consumptive ospitals in New York, with whom I come into contact, will ar me out from their own personal knowledge, when I say at the only case I should not have at once promptly rejected utterly unfitted for serum treatment from among the ten esented by Dr. Waxham, is No. 8. Of Case No. 1 I can not eak positively, owing to the meager report of physical signs, mperature, etc., given.

I wish here to point out that no clinical records are of any lue which do not describe in detail the physical signs and nditions found. I was always taught, and by no less an thority than Sir William Broadbent, in recording clinical ses to give the details of the signs as found, leaving the duction as to their significance to be made by the reader. Dr. axham has reversed this practice, giving only his deductions, d leaving the physical signs, etc., to be inferred. Every man s, of course, a right to his own method; but I must own that to me the former seems far the more scientific, and when the subject is of a controversial nature, the more satisfactory.

In concluding, Dr. Waxham says: "It is possible that in incipient cases the A.P. serum may overcome the disease." As that proposition was clearly laid before Dr. Waxham at the outset as the extent of the claim, I fail to see why he should have tried to prove that it could not do what was never claimed that it could. He proceeds: "If it can be proven to be effective in early cases, thus preventing the necessity of a change of climate, it will indeed be a blessing to mankind." To this we can all agree; I will go further and add that without disparaging climatic, hygienic, nutritional and other modes of treatment, all of which can render valuable aid *where available*, we may reasonably propose for investigation the question whether serum treatment is not quicker, more certain, and more permanent in its results, even though it be conceded that such results are at present attained with more or less frequency by the methods above referred to.

What results may later be gained in cases with disintegrating or mixed infective processes (viz., all third stage and *late* second stage cases) by improvements in the serum, or by its alternate administration with anti-streptococcus serum, remains to be shown. But at present we reaffirm as rules for the selection of cases for treatment with the antiphthisic serum T. R. (Fisch):

1. It is *not* recommended to be used with any anticipation of good results in *any* third stage cases.
2. It is *not* recommended in any *late* second stage cases, i.e., with breaking down of tissue, especially if there be "mixed infection."
3. It *is* recommended in the so-called "pretubercular" stage, in the first stage, and in the early second stage prior to disintegration; and in these alone.
4. Finally, its advantages if it be proved to possess any, over climatic, hygienic, nutritional and other methods, will be found to lie in the attainment of results more quickly, more certainly, more permanently, and without the necessity of measures which in a very large proportion of phthisical cases are unattainable.

If Dr. Waxham's paper helps to fix these points in the minds of prospective users of the serum, it will not have been published in vain; for it shows conspicuously "what *not* to do," which is oftentimes far more instructive than the converse.

Yours respectfully,
KENNETH W. MILLICAN, M.D., B.A., M.R.C.S.

Oxytuberculin.

SANTA CLARA, CAL., March 15, 1898.

To the Editor:—In the JOURNAL of March 12, 1898 (p. 621), Dr. J. O. Hirschfelder writes of "Oxytuberculin." In his article he states that "it was and is my desire that the doctrine of the curative effect of oxidized toxins should be most skeptically investigated, etc." That is just what I have been doing. The more I investigate the more skeptic I become, especially as regards "oxytuberculin." As to the Doctor not having "entered upon the field of animal experimentation, but limiting my work entirely to the clinical and bacteriologic sphere, etc.," I beg leave to call Dr. Hirschfelder's attention to plate 1, page 268 of the "Transactions of the Medical Society of the State of California" for 1897. This plate shows a dog upon whom the Doctor claimed to have experimented. The same plate, or one purporting to be the same, appeared on the first page of the *Daily Examiner* of San Francisco, Oct. 25, 1897.

Dr. Hirschfelder labors under a grave misapprehension as to my place of abode. Instead of a small village I live in an incorporated town of 3300 inhabitants. The town and surrounding country afford an excellent field for general practice. Again, I must beg to correct the erroneous statement that "he has had some unpleasantness with a medical gentleman who is using oxytuberculin with most excellent success in Santa Clara." I have never an unpleasantness with a medical *gentleman* in my life. "Oxytuberculin" is being used "with most excellent success" financially, we presume. However, I challenge Dr. Hirschfelder or anyone else to produce a resident of the town of Santa Clara who has been positively cured of tuberculosis by "oxytuberculin." I want the diagnosis and cure above the suspicion of a doubt. There have been a number of cases here in which the disease terminated by death. I understood that "oxytuberculin" had been tried in these cases.

In one case which I have seen, and in which it is averred Dr. Hirschfelder examined the sputum a number of times before finding the tubercle bacilli, and then but a "few," there is a grave doubt in the minds of several reputable practitioners as to whether or not there is or ever was tuberculosis. There is evidence of an old pleurisy, a heart lesion and an aneurysm in the vicinity of the left common carotid artery. There is no hectic, expectoration or other important symptom which proves the existence of tuberculosis. Oxytuberculin was tried for a time with the result that the patient lost many pounds of flesh according to her own statement. After a cessation from the use of "oxytuberculin" she regained some flesh. Treatment directed toward the amelioration of the symptoms due to the aneurysm has made the patient much more comfortable than she had been in weeks.

As to the county hospital cases, I must say that I do not think that a full-fledged case of tuberculosis could subsist on thirteen cents a day very long. I think the diet rather than the oxytuberculin cut short those cases. The marvelous results which seem to have been claimed, have in one instance at least occurred in a patient said not to have been "expected to live a week;" I would ask the Doctor if this was an "early stage case."

I wish to call attention to the fact that the case or cases about which I wrote were in my own town and not under Dr. Hirschfelder's immediate care. I do know something about these cases. More than that, I have read the Doctor's reports of cases, and I must say that I do not think very many medical men are likely to know much about his cases from his reports, as they seem to be made up mostly of assertion and very little data of positive value.

I agree with the learned Doctor that "there should be no mud-throwing in the temple of science." However, in the pseudo-temple of science in which he would seemingly enshrine himself and "oxytuberculin," he must be responsible for what takes place. He has invited criticism and "skeptic investigation" and must not be dissatisfied or angry if such criticism comes from "a small village some fifty miles from here," or from a fair-sized municipality like Paris, for instance, some thousands of miles from here. I would beg leave to observe that the country practitioner is quite as apt to be skeptic and think for himself as is the metropolitan practitioner. In fact, the "country doctor" does not seem quite so much given to fads as his more or less fortunate city brother. Yours respectfully,

E. H. Smith, M.D.

State Board Examinations.

Franklin, Ky., Feb. 22, 1898.

To the Editor:—Will you be kind enough to publish the names of all the States that require all graduates to stand an examination before the State board before they can practice?

Yours truly, W. A. Guthrie, M.D.

Answer.—Alabama, Arkansas, Florida, Maryland, Minnesota, Mississippi, New Jersey, New York, North Carolina, North Dakota, Pennsylvania, South Dakota, Texas, Utah, Virginia and Washington. *Vide* Journal, Vol. 22, p. 354.

Let us defeat the Antivivisection Bill!

NEW INSTRUMENTS.

A NEW RECTAL SPECULUM.

BY THOMAS CHARLES MARTIN, M.D.
CLEVELAND, OHIO.

The instrument which is the subject of the following description was briefly described in the July (1896) number of the *Cleveland Medical Gazette*. It is now being quite extensively and, I regret to say, defectively manufactured. The italicized paragraph points to the defective features of many of the specula to be found at the shops. If this feature is not made to operate precisely as designed the instrument can not be manipulated with one hand unaided.

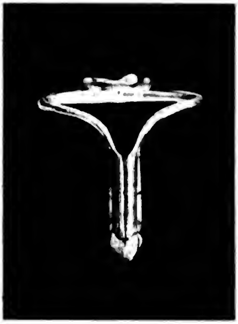

Figure 1.

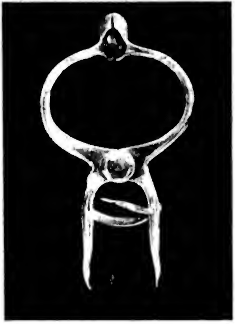

Figure 2.

This two bladed speculum is designed especially for use on the rectum. The form and dimensions of the blades have been planned with a particular consideration for the dimensions and form of the parts upon which they are to be used. The blades proper are two inches (5 cm.) in length, they are very shallow and their edges are given a pronounced inward turn: their acorn-like initial extremity contributes to the instrument's facility for introduction, while at the same time especially qualifies it to be self-retaining. The inturned edges of the blades permit of easy rotation when in the bowel. The shallowness of the blades provides for the greatest possible exposure of the walls of the rectum when the blades are separated. The length of the blades has been determined by a consideration for the depth of the neck or lower contracted fixed part of the rectum. The blades are set at the ends of long outreaching and descending arms, a feature which gives much satisfaction when the instrument is in use. The length and curves of these arms afford four positive advantages; lying close along the surface of the nates, as they do, these parts are held aside; the blades are buried in the anus, no part of the blades or arms projecting above the surface to obstruct the field of vision and operation. These outstretched arms permit approach to the exposed proximal wall of the rectum as well as to the distal; the great distance at which the blades are set from the joint provides for the simultaneous exposure of almost as great a surface of proximal wall as of the distal.

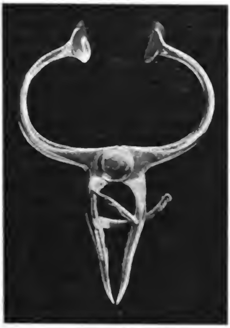

Figure 3.

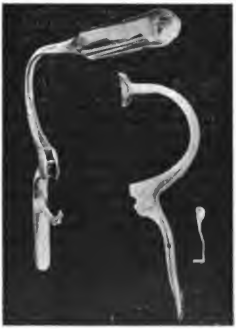

Figure 4.

The easily working collar button joint is a feature which commends itself to those who appreciate the value of an aseptic instrument.

I feel sure that the quick lever-screw lock in the handle will also find favor. The perfectly constructed instrument will be locked when the lever is at one or the other of the two positions shown in Figs. 2 and 3. By such a provision the speculum may be locked and unlocked, opened and closed with one unaided hand. (Instruments defective in this particular may be corrected by filing a bit off the screw end.)

Designedly the speculum lacks a spring. My experience convinces me of the disadvantage of a spring between the handles of instruments designed to be used about the anus. The blades of that instrument which is provided with a spring are often rushed together with such force as to grasp and damage the mucous membrane. The sphincters ani provide the only spring this speculum requires—the anus will not pinch itself. The speculum, which is springless, is not capable of any movement independent of the exercise of the operator's will, while the converse is true of the spring speculum.

The handles of this instrument are of such length that the pressure of the surgeon's grip is at the same distance from the fulcrum as are the blades; thus, in his sense of touch he may have at one and the same time an intelligent appreciation of the force he applies and of the resistence supplied by the sphincters.

With this speculum introduced to the rectum and rotated 45 degrees the surgeon may, aided by a proctoscopic mirror and proper posture of the patient, survey at a glance the whole of the interior of the rectum and a part of the sigmoid flexure.

The use of bivalvular, trivalvular, fenestrated tubular, or of specula of forms other than that of the complete cylinder provoke pain, therefore the above described rectal speculum is designed to be used only on the anesthetized subject.

1077 Prospect Street.

ASSOCIATION NEWS.

Section on Obstetrics and Diseases of Women.—All the members of the Section on Obstetrics and Diseases of Women of the American Medical Association who intend to participate in the Section dinner at the meeting of the Association in Denver, will please signify their intention by writing to Dr. E. C. Rivers, Chairman of the Section Dinners, Denver, Colo.

Section on State Medicine.—Members desiring to read papers in the Section on State Medicine are requested to send the title of their paper as early as possible to Dr. Arthur R. Reynolds, Room 2, City Hall, Secretary of the Section. Following is a list of papers already promised:

Maritime and Interstate Quarantine, by G. B. Thornton, President of Board of Health of Memphis, Tenn.

Isolation in a Great City, How Best Accomplished, by Samuel P. Duffield, Health Officer of Detroit, Mich.

The Relation of the Courts to Administration of Sanitary Laws, by William P. Munn, Health Commissioner, Denver.

Maritime Quarantine, by A. H. Doty, Quarantine Officer, Port of New York.

The Difference in Sanitary Quality Between Water and Ice from the Same Source, by Adolph Gehrmann, Superintendent City Laboratory, Chicago.

The Control of Diphtheria, by William K. Jaques, Chicago.

Concerning the Importance of Bacteriology in Preventive Medicine, by Franklin Staples, Winona, Minn.

Recent Investigation of the Action of Alcohol on all Growth, by I. D. Crothers, Hartford, Conn.

The Necessity for Mountain Sanitariums for the Treatment of Poor Consumptives, by J. H. Kellogg, Battle Creek, Mich.

Cold and Respiratory Diseases, by Charles H. Shepard, Brooklyn, N. Y.

The Treatment of Syphilis by the General Practitioner, by Harvey P. Jack, Canesteo, N. Y.

The Great Need of Central Resting and Recreation Places in the Large American Cities, by Thomas H. Manley, New York City.

Brain Surgery from Railway Injuries, by Clinton P. Herrick, Troy, N. Y.

Thallassic Submersion a Means of Disposal of the Dead, by Daniel Lichty, Rockford, Ill.

The Supervision and Licensing of Certain Industries Necessitated by Their Bearing upon Public Health, by Ernest Wende, Buffalo, N. Y.

The following have promised papers: Benjamin Lee, Philadelphia; H. N. Avery, Minneapolis, Minn.; Lewis D. Mason, Brooklyn, N. Y.; Thomas F. Harrington, Lowell, Mass.

SOCIETY NEWS.

Kentucky Midland.—The Kentucky Midland Medical Association will hold its ninth quarterly meeting in Georgetown, Ky., April 14, 1898. Dr. F. B. Powers of Lawrenceburg is secretary.

Mississippi State Medical Association.—The thirty-first annual meeting of the Mississippi State Medical Association will convene in Jackson, Wednesday, April 20, 1898. Titles of papers should be sent, by April 1, to J. R. Tackett, secretary, Biloxi, Miss.

West Virginia State Medical Society.—The thirty-first annual meeting of the medical society of the State of West Virginia will be held in Martinsburg, May 18, 19 and 20. Those wishing to read papers will send title to the secretary, G. A. Aschman, M.D., Wheeling, W. Va., before May 1.

The Tri-State Medical Society of Iowa, Illinois and Missouri will meet at Dubuque, Iowa, April 5 and 6. The following have promised papers: R. N. Cresap, Bonaparte, Iowa; Albert H. Cordier, Kansas City; George Kessel, Cresco, Iowa; Albert Green, Rockford, Ill.; Wm. E. Whitney, Eldora, Iowa; W. W. Peck, Darlington, Wis.; D. C. Brockman, Ottumwa, Iowa; James Moores Ball, St. Louis; F. A. Dunsmoor, Minneapolis; Byron Robinson, Chicago; John W. Kime, Des Moines; C. E. Ruth, Keokuk; A. C. Bernays, St. Louis; R. P. Berry, Clermont, Iowa; Gershom H. Hill, Independence; W. P. Hartford, Cassville, Wis.; T. J. Maxwell, Keokuk; Emory Lanphear, St. Louis; J. Scott Stevens, Cedar Falls; James H. Etheridge, Chicago; Francis Reder, St. Louis; C. C. Gratiot, Shullsburg, Wis.; Paul Paquin, St. Louis; G. H. Fuller, Delhi, Iowa; W. H. Byford, Chicago; G. Frank Lydston, Chicago; D. S. Fairchild, Clinton, Iowa; Thomas H. Manley, New York; Franklin H. Martin, Chicago; F. B. Dorsey, Keokuk; J. R. Brady, Lamont, Iowa; E. O. Cisson, Keokuk; J. H. Craig, Volga City, Iowa; J. DeWitt Graham, Springville, Iowa; L. J. Bowman, Greeley, Iowa; H. C. Temple, Waucoma, Iowa; Jacob Geiger, St. Joseph; William F. Waugh, Chicago; C. R. Pickering, Muscoda, Wis.; Thomas Bassett Keyes, Chicago; L. L. Renshaw, Monona, Iowa; J. J. Lindsay, Manchester, Iowa; W. B. Graham, Waterloo, Iowa; H. C. Markham, Independence; Charles H. Flinn, Postville, Iowa; N. J. A. Mueller, Dyersville, Iowa; J. J. Brownson, Dubuque and J. W. Osborn, Dyersville, Iowa.

Missouri State Medical Society.—The Medical Association of Missouri will meet at Excelsior Springs, May 24, 25 and 26, 1898, instead of the previous week as heretofore announced, the change being necessary to secure proper accommodations. The Committee on Scientific Communications (Drs. Emory Lanphear of St. Louis, C. H. Wallace of St. Joseph and Joseph Sharp of Kansas City) announces the following papers which are given and will be read in the order of their reception:

President's Address, Prof, Jacob Geiger, St. Joseph; "Pelvic Abscess," Prof. O. Beverly Campbell, St. Joseph; "Diagnosis in Infantile Diseases," O. P. Kernodle, Sedalia; "Delays in Surgery," W. B. Sisson, Kahoka; "Value of the Use of Diphtheritic Antitoxin in the Treatment of Pseudo-Membraneous Croup," L. I. Matthews, Joplin; "Hypnotic Criminality," Joseph Taintor, Warrenton; "Enuresis of Childhood as It Frequently Extends in Its Results to and even Later than Puberty," Prof. J. M. Richmond, St. Joseph; "Report of a Case of Cholecystotomy," Francis Reder, St. Louis; "Progress Made in the Treatment of Conditions Resulting from Microbic Infection," J. T. Marsh, Liberty; "Some Remarks on a Recent Epidemic of Typhoid Fever," H. H. Vinke, St. Charles; "Venesection in the Treatment of Disease," P. S. Fulkerson, Lexington; "Broncho-pneumonia," J. D. Brummall, Salisbury; "Nasopharyngeal Catarrh and its Treatment by the General Practitioner," S. S. Davis, Fulton; "State Medicine," Prof. J. M. Allen, Liberty; "Three Cases of Hysteric Vomiting," Prof. Jerome K. Bauduy, St. Louis; "Osteomyelitis," Prof. T. E. Potter, St. Joseph; "Occlusion of the Posterior Nares (bony), two Cases," J. Rule Fritts, Mexico; "Personal Experience in the Treatment of Uterine Fibroids," Prof. Walter B. Dorsett, St. Louis; "A Case of Extra-uterine Pregnancy Operated upon at the Eighth Month; Recovery," Prof. H. C. Dalton, St. Louis; Does Missouri Need a Home for Epileptics?" Geo. R. Highsmith, Carrollton; "Quinin Blindness: the Amaurotic Form of Tabes; Hydrophthalmos; Report of Cases," Prof. James Moores Ball, St. Louis; "The Way to Determine the Qualifications of Matriculates in our Medical Schools," W. Francis Mitchell, Lancaster; "A Rapid Treatment of Chancroid and Syphilitic Ulcerative Lesions," A. H. Ohmann-Dumesnil, St. Louis; "Physiologic and Pathologic Intemperance," Edward E. Parrish, Memphis; "Spina Bifida and its Treatment, with Report of Cases," Prof. T. F. Prewitt, St. Louis; "Some Phases of Intestinal Obstruction," Prof. A. H. Cordier, Kansas City; Report of Committee on Progress in Obstetrics, Prof. B. M. Hypes, chairman, St. Louis; Report of Committee on Progress in Gynecology, Geo. F. Hulbert, chairman, St. Louis; "The Progress of Phthisic Processes in the Lungs by Way of Bronchi," Prof. Wm. Ophuls, Columbia; Report of Committee on Progress in Pediatrics, I. N. Love, chairman, St. Louis; Report of Committee on Progress in Surgery, Prof. Andrew L. Fulton, chairman, Kansas City; "Asexualization as a Preventive of Pauperism and Crime," R. S. Kelso, Joplin; "The Treatment of Chronic Hypertrophic Tonsillitis in the Light of Modern Theories of Infection Through the Tonsil," Prof. Hanau W. Loeb, St. Louis; "Report of Two Cases of Intracranial Aneurysm," Prof. J. D. Griffith, Kansas City; "Report of a Case of Castration for Enlarged Prostate, Followed One Year Later by Prostatectomy; with Presentation of Patient," Prof. C. M. Nicholson, St. Louis; Title unannounced, J. Block, Kansas City; "Fat Embolism, with a Report of a Case," T. B. Ellis, Bethany; "Stricture of the Esophagus," Paul Paquin, St. Louis; "When to do Colpohysterectomy, and Methods," Prof. Milo Buel Ward, Kansas City; "Surgical Anatomy of the Ankle Joint," Prof. Herman E. Pearse, Kansas City; "The Effects of Osteopathy upon the Patient and upon the Business of Reputable Physicians," Whitley G. Hendrix, New London; "How to Give Prompt and Permanent Relief in Prostatic Obstruction," Geo. Wiley Broome, St. Louis; "A Plea for Early Operation in Cholelithiasis," Prof. A. H. Meisenbach, St. Louis; "Facial Erysipelas; Its Treatment," Z. T. Martin, Lathrop; "Treatment of Hemorrhoids by the Clamp and Cautery Method," Prof. S. G. Gant, Kansas City; Subject unannounced, N. M. Baskett, Moberly; "The Application of Protargol in Ophthalmic Surgery," Prof. B. E. Fryer, Kansas City; "Typhoid Fever," Robert E. Sevier, Liberty; "Traumatic Injuries of the Urethra," J. W. Holliday, Tarkio; "Electrotherapeutics," Prof. Brummell Jones, Kansas City; "Pneumonia," Tinsley Brown, Hamilton; "Injuries Produced by Bicycle Saddles and their Rational Remedy," John L. Short, Rolla; "Can Cancer of the Uterus be Cured?" Emory Lanphear, St. Louis.

NECROLOGY.

Dr. W. S. O'NEAL, M.D., of Lancaster, Ky., died at that place on March 15. He had been a sufferer from bronchial asthma for a number of years, and his last attack complicated by bronchopneumonia was the cause of death. He was born at Verona, Boone County, Ky., 61 years ago, on October 3. He was graduated from the Ohio Medical College in 1861 and located at Verona, where he practiced for twenty-one years. Thirteen years ago he moved to Lancaster, Ky., where his only child had married, and soon had a large practice. He was a member of the State Medical Society for more than thirty years, and was much loved in the community in which he lived. He was recently appointed a member of the State Board of Health by the governor, which place he resigned shortly before his death.

JOHN T. CONKLING, M.D., College of Physicians and Surgeons, N. Y., 1855, died after about a year's illness at his home in Brooklyn, N. Y., aged 73 years. He was connected with the Brooklyn Board of Health as sanitary superintendent in 1866 and 1867. From 1874 to 1877 he was a health commissioner and introduced the ambulance system in Brooklyn. He was also for six years connected with the board of education, and despite his quiet unostentatious manner, was regarded as a public-spirited citizen.

E. A. Praeger, M.D., Los Angeles, Cal., March 6, aged 43 years. The Doctor was professor of gynecology, Los Angeles Polyclinic, Fellow of American Obstetricians and Gynecologists, Fellow of the Obstetrical Society of London, member of the British and Canadian Medical Associations, and Southern California Medical Society.

Wm. P. Morrissey, M.D., New York University, 1869, for more than ten years a police surgeon in Brooklyn, died in his 52d year at his home in Greenpoint, N. Y., March 13. He was a Canadian by birth. A widow, three daughters and one son are his survivors.

P. D. Baker, M.D., Franklintown, Pa., March 8.——F. P. Bell, M.D., Naples, N. Y., March 12, aged 39 years.——C. S. Boarman, M.D., Boonville. Mo., March 15, aged 72 years.——James S. Fulks, M.D., Baltimore, March 13, aged 69 years.——W. C. Hobbs, M.D., New London, Iowa, March 2, aged 84 years.——L. M. Squire, M.D., Poynette, Wis., March 7.——J. J. Towle, M.D., Jamestown, N. Y., March 12, aged 61 years.——Alward M. White, M.D., El Paso, Texas, March 10.

Deaths Abroad.—J. C. Busch, M.D., Germany, prominent in legislative, professional and editorial activity.——W. Moldenhauer, professor of otology at Leipzig.——G. Kalischer, M.D., Berlin.——Anna Jelenewa, M.D., superintendent of foundling hospital at Nishni Nowgorod. Committed suicide on account of death of infant from defective hot water bottle.——M. H. Saenger, professor of obstetrics at Groningen.——Prof. Rudolf Leuckart, the distinguished entomologist and parasitologist of the University of Leipzig, born at Helmstedt in 1823. In 1847 he became Privat-Docent at Göttingen, and in 1855 he was appointed professor of zoology in the University of Giessen. In 1870 he accepted a call to the corresponding chair at Leipzig, which he occupied till his death. Besides his great work "Die Parasiten des Menschen," which appeared in 1863, he contributed largely to the literature of his special department. As a teacher he was regarded throughout the scientific world as the greatest authority on the subject which he professed.——Prof. Waldemar von Schroeder, director of the Pharmacological Institute of Heidelberg.——Dr. Carl Nikolas, professor of hygiene in Lausanne.——Dr. Otto von Essen, of St. Petersburg, a Russian dermatologist, aged 35 years.——Dr. Mesnet, member of the Académie de Médecine and author of several works on the nervous system and hypnotism, aged 77 years.——Dr. Ludwig Ruge, aged 81, the oldest practitioner in Berlin.——Prof. Leopold Auerbach of Breslau, a writer on neuropathology, aged 69 years.——Dr. Paul Hasse, formerly medical director of the Brunswick Lunatic Asylum at Königslutter, aged 68 years.

PUBLIC HEALTH.

A Congress for the Study of Tuberculosis will convene at Paris, July 27 to August 2, under the auspices of a permanent committee consisting of prominent physicians, professors and veterinarians. L. H. Petit, general secretary, Menton (Alpes Maritimes), France.

The Carrasquilla Leprosy Serum has been found ineffectual by the committee appointed to study its action by the Academy of Medicine at Bogota, at the request of the government. Twelve patients were carefully treated by Carrasquilla and scientifically observed by the committee during a period of nine months, and they report "with positive grief," that the serum failed to modify the symptoms or the course of the disease in any case (*Revista Méd. de Bogota*, December, 1897, just received). Carrasquilla's first announcement was made after only two month's experience with the serum.

Hospital Ships for Cuba.—The *Archivos de la Policlinica* mentions that the distressing conditions accompanying the transportation of sick and wounded soldiers to the Peninsula in the usual passenger steamers, have forced the government to provide some large vessels fitted up for hospital purposes alone. The first of the "transatlantic hospitals" has arrived at Havana and will have eight physicians, a pharmacist and a military officer on board when it leaves.

Serum Treatment of Yellow Fever.—Sanarelli has sent out a limited number of samples of his finished serum to colleagues in Brazil, this country, etc., begging them to use it strictly in accordance with his directions, so that the tests may be uniform and all cases rigorously observed. He remarks that the "effect on man will probably be favorable, judging from its efficacy in saving animals destined to succumb almost without exception to experimental yellow fever."

State Board of Health of Pennsylvania.—In *Public Health* (January) Dr. Benjamin Lee outlines the parsimonious treatment that befell his State Board during the year just closed. It seems that early in that year there occurred a most untimely accident and damage to sanitary, as well as more material interests, in the fact that the State capitol at Harrisburg took fire and was entirely destroyed, with most of its contents. This disaster not only deprived the board of its place of meeting at the capitol of the State, but it caused a loss of about $544 in furniture, books and stationery. Many of the books it will be impossible to replace. The board should make earnest effort to induce the commission for the rebuilding of the capitol to provide for its permanent use a commodious, well-lighted, conveniently arranged suite of rooms, consisting at least of an anteroom, a room for the meetings of the board and room for that sadly neglected but most essential department of the work of the commonwealth, the Bureau of Vital Statistics. The last-mentioned room should contain fireproof cases for protecting the returns, which will soon become quite voluminous and will be of great value. It is recommended that a resolution to this effect be adopted at the current meeting. Indirectly, however, the burning of the capitol worked much more serious detriment to the interests of the board than the destruction of its office and property. Entailing a very considerable immediate outlay in providing a temporary place of meeting for the legislature, then in session, and a far greater prospective expenditure in rebuilding the ruined edifice, this disaster created an uneasiness in regard to the financial condition of the State government and inspired the members of the legislature with a zeal for indiscriminate retrenchment as unfortunate in its results in some directions as it was wise and commendable in others. So far from being met in a spirit of enlightened liberality by the members of that body, the Committee on Sanitary Legislation of the Board was obliged to content itself with acting on the defensive. Only by unremitting efforts did it succeed in obtaining the same meagre appropriation which had been doled out to it in the past, in preventing the repeal of certain acts of much importance to the sanitary welfare of the people and in preventing the enactment of others which were fraught with danger to the State. Was it necessity then that caused Dr. Lee, of all the State health officers, to endorse the Caffery bill?

Sanitation and Utilization of the By-Products of Dairies.—The Food Fair, which was held during the month of October in Boston, contained in its Agricultural Department an exhibit of interesting character, which had for its object the demonstration of certain new processes for utilizing the by-products in dairies; namely, the skimmed milk, the buttermilk, and the whey. The exhibit brought out the merits of certain processes shown that have been devised by Alexander Bernstein of Berlin, at present in Boston. If we consider the enormous quantities of these by-products, probably more than twenty million quarts per day, the question of their better commercial utilization appears of the utmost importance as a matter of national economy. The milk is mixed with a small amount of wheat flour or other farinaceous material. The flour does not dissolve in milk, but can be maintained for a short time in a state of exceedingly fine division, approaching the state of the fat globules. If rennet is added, and certain precautions are taken, the milk will gradually curdle and retain the flour in an even and very finely distributed state in the curd. The further treatment is as usual; but the cheese, instead of being a hard, leathery substance, is soft and of loose texture. It seems that during the process of ripening the flour undergoes some changes, which impart a pleasant piquant taste to this kind of cheese. But the utility of this process has another application. This farinaceous curd, as it may be called, can be made so loose as to form a powder when dry; and it can then be mixed with more flour to form a dough suitable for baking purposes. After the casein has been removed, the whey remains. In another part of the exhibit is shown how this substance can be made into a pleasant beverage, of excellent taste and wholesome. To accomplish this the whey is treated in such a manner as to become perfectly clear and transparent by the removal of all undissolved matter. The popular idea that a beverage should be clear is not a mere fancy. In drinking, we wish to assist digestion and not introduce undissolved substances, which give additional work to the digestive organs. The finished whey to which the name of "wheyn" has been given, contains a considerable amount of lactic acid and a small amount of sugar, which is added to make it more palatable. As to its medicinal effects, it has long been known that whey is an excellent tonic in cases of general debility, in liver and in kidney diseases; but the fresh whey is out of reach for the city population, and the danger of possible infectious germs is another objection to its use. In "wheyn" we have a perfectly sterilized product, pleasant to the taste, which has all the essential features of whey as a beverage. It would be difficult to state whence the medical value of whey is derived. It is a remarkable fact, that animals fed exclusively with an artificial mixture of pure casein with sugar and the salts of the milk, all in proportion in which they are contained in milk, will invariably die in a short time, showing that there must be something in the constitution of milk which is not shown by analysis. "Wheyn" has been made sparkling to answer the purpose of a table beverage, and in this form it was shown in the exhibit above referred to.—*Journal of the Massachusetts Association of Boards of Health.*

BOOK NOTICES.

Lessons in Hypnotism and the Use of Suggestion, Based Upon the Neuron Motility Hypothesis. By Leslie J. Meacham. Cincinnati, Ohio: The Bishop Publishing Co. 1898.

The author of this work, though a layman, has evidently studied considerable medical literature in the preparation of his book, which he says is "intended primarily for the use of physicians." Undoubtedly it may be of some interest to medical men, but its practical value is hardly likely to be as great as perhaps its author anticipates. Hypnotism has been before the medical profession in one form or another for over a century and has always had its advocates and the utilizers, but its actual practical benefits have never equaled expectations and the verdict of half a century ago is likely to be repeated now. This little volume, while intentionally scientific, has too much unsupported theory to be successfully so. Like some really accomplished but not severely critical medical authorities who have injured their scientific reputations by an undue credulity in these matters, Mr. Meacham goes well beyond all possible scientific proof in his ideas of cures, telepathy, etc.

The book is interestingly written and strikingly illustrated.

The Nervous System and Its Diseases; A Practical Treatise on Neurology for Physicians and Students. By Chas. K. Mills, M.D., Professor of Mental Diseases and Medical Jurisprudence in the University of Pennsylvania, etc. Diseases of the brain and cranial nerves, with a general introduction on the study and treatment of nervous diseases; 459 illustrations, pp. 1056. Philadelphia: J. B. Lippincott Co., 1898.

Although the author intends, if circumstances permit, to follow this volume by another which shall include the remaining diseases of the nervous system, insanity and medical jurisprudence, the present volume is complete in itself with bibliographic and general index. The bibliography is very full, and the general index leaves nothing to be desired. The introductory portion of the work comprises a summary of the embryology, anatomy, physiology and chemistry of the nervous system, and a consideration of the general pathology, etiology and symptomatology of nervous diseases, with the methods of investigating them and the best measures applicable in their treatment. Close attention has been given to the subject of localization with regard to all portions of the encephalon. The nomenclature and terminology, advised by Prof. Burt J. Wilder of Cornell University have been in the main used throughout the book. Many of the illustrations are new and they are all clear and distinct. This work is very compact, concise and withal written easily. It is a pleasure to read the works of this writer and in this book his style is shown to its best advantage. The most difficult branches of this confessedly intricate subject are illumined by the pleasing style of the author. If one could have but a single book on diseases of the nervous system, he would not make a mistake in selecting this.

Fatty Ills and Their Masquerades. By Ephraim Cutter, LL.D., M.D., and John Ashburton Cutter, B.Sc., M.D.; "being a contribution to clinical medicine for practitioners and students, to emphasize the inestimable value of the microscope in detecting the prestages of amaurosis, angina pectoris, apoplexy, Bright's disease, cataract, dementia, fatty heart, gall-stones, glaucoma, hemophilia, locomotor ataxia, etc., and the like value of American means of treatment in these prestages, and those advanced stages usually considered incurable."

That fat is the natural enemy of mankind every athlete knows, and if Dr. Cutter's book will better aid in getting rid of this persistent enemy, it will not have been written in vain. A number of cases are given in the peculiarly interesting style of the author, and they serve conclusively to illustrate the points the author makes. The book is entertaining, and even if one does not agree with the author's conclusions, he will at least be interested in the manner of stating his case. As an addition to American medical literature, it is unique and should find a place in the advanced medical library.

The Essentials of Experimental Physiology; for the Use of Students. By T. G. Brodie, Lecturer on Physiology, St. Thomas' Hospital Medical School. Pp. 231. London, New York and Bombay: Longmans, Green & Co. 1898.

The aim of the author in writing this book has been to give a short account of those experiments which can be carried out by students during classes, together with a description of experiments suitable for class demonstrations. The illustrations are numerous and for the most part new. The contents of this volume comprise 22 chapters, namely, chapter 1, some physical instruments in constant use and in physiologic experiments; chapters 2 and 3, frog's muscle; chapters 4, 5, 6 and 7, experiments on muscular contraction, tetanus, fatigue of muscle, thickening, excitability, polarization of electrodes; chapter 8

·eriments to determine the function of nerves; chapters 9, 11, 12 and 13, experiments on frog's heart; chapter 14, nonstrations of the movement of the mammalian heart; ·pter 15, experiments in electro-physiology; chapters 16 and on the circulation of the blood, sphygmograph; chapter the kidney, demonstration of oncometer experiments; chap- 19, demonstration of the nerves, regulation and respiration; ·apter 20, demonstration of the secretion of saliva; chapter reflex action excited upon the spinal cord of the frog; and ·apter 22, experiments and physiology of the eye.

[he work is well adapted for advanced students in the ·oratory.

: Year-book of Treatment for 1898. A Critical review for Prac- :itioners of Medicine and Surgery. Crown octavo; 488 pages. Cloth, $1.50. Philadelphia and New York: Lea Brothers & Co. 1898.

This work is a trustworthy epitome of the year's progress in branches of practical medicine. The aim of this book is furnish a readable digest of the therapeutics of the year for ɔ use of practitioners. Considering the compass into which is compressed, it must be conceded that the editors have rly succeeded in the work assigned them.

The list of contributors comprises Francis D. Boyd, Patrick ·anson, Dudley W. Buxton, Malcolm Morris, Albert Carless, lmond Owen, Alfred Cooper, Sydney Philips, George P. eld, Henry Power, Archibald E. Garrod, E. S. Reynolds, G. Gibson, Wm. Ross, M. Hanfield Jones, Gustav Schorstein, ·ginald Harrison, Sinclair Thompson, Herbert P. Hawkins, ·stor Tirard, G. Ernest Hartman, W. J. Walsham, J. Ernest ·ane, E. F. Willoughby, P. Luff and Dawson Williams.

·e Therapeutics of Infancy and Childhood. By A. Jacobi, M.D., Clinical Professor of Diseases of Children in the College of Physicians and Surgeons, New York, etc., etc. Second edition, pp. 629.

Although the author states that the revision of this book ·as begun immediately after its publication; that some of the ·apters are rewritten, and a few new ones added, and that ·ere is hardly one that has not been somewhat enlarged or herwise changed, yet we have additional reason to reassert ·ır favorable opinion of the book expressed in our issue, Vol. ·, 1896, p. 190. The fact of the early exhaustion of the first lition, which was published in 1896, carries with it sufficient ·idence of its popularity with the profession.

·ansactions of the Pathological Society of London in 1896.

These transactions have been a veritable mine of wealth not ·ly to practitioners, but to hundreds of medical students in ·e throes of thesis writing. The latest, or forty-seventh, ·lume is now here fresh from the press of Smith, Elder & Co., ·nd is for the year 1896. The excellence of the illustrations, · important to a work of this class, is great and constantly ·creasing. All the modern improvements in photography and llied pictorial presentation are liberally and wisely employed.

MISCELLANY.

Roentgen and Lenard Honored.—The Paris Académie des Sci- nces not only awarded the La Caze prize of 10,000 francs to ·oentgen, but also bestowed the same amount upon Professor ·enard of Heidelberg, whose work on the cathode ray stimu- ·ted Roentgen to further research, and led to his great dis- overy.

Fate of Tetanus Toxin in the Alimentary Canal of Guinea Pigs.—·ecent experimentation at Behring's Institute shows that the upremely toxic tetanus toxin is entirely harmless to the organ- ·sm from the alimentary canal. It is not absorbed either from he stomach or the intestines, but passes unaltered through he entire canal and is thus eliminated *per anum.*—*Deu. Med. Woch.*, February 24.

Correction.—In the Journal of March 12, in a note on Pittsburg (page 630), mention is made of the specialists, and the name "Barham," is given. This should read "Hersman."

A Pitfall.—Mrs. Pokely: I understand from Mrs. Jokely that your doctor was guilty of conduct unbecoming a gentleman? Miss Meekly: Yes. Mrs. Pokely: Good gracious! When and what—. Miss Meekly: O! constantly. My doctor's a lady. —*Philadelphia Record.*

"Death and Sudden Death."—This latest work by Dr. P. Brouardel has appeared in English dress, and is warmly commended by the critics as a veritable classic. And the author, who has for years been the official director of the Paris morgue, is *facile princeps* among the French medical jurists.

Postmortuary Parturition.—In German medical literature is found a term for which as far as we are aware, there is no English equivalent, viz., "Sarggeburt," which literally translated means "coffin-birth," that is to say, that a pregnant woman dies and the body is placed in a coffin and then before or after burial, delivery takes place. Very few cases of this kind are on record.—*Medical News.*

Consolidation of the Spine After Reduction of Curvature.—Ducroquet has found by radiographs of patients taken several months after the hump had been forcibly reduced, that two-thirds to four-fifths of the gap has been filled by new osseous formation, a result surpassing expectation, and supplying a bony column of great solidity that ensures ample support to the spine.—*Nord. Méd.*, v, 81.

Effect of the Roentgen Ray on Bacteria.—Perfected apparatus and technique have convinced Rieder that the Roentgen ray acts upon bacteria exactly the same as sunlight, only much more intensely, destroying them or at least checking their growth. His experience encourages further therapeutic application of the rays.—*Münch. Med. Woch.*, 1898, No. 4.

A Course of Lectures on Hydrotherapeutics has been provided in the annual appropriations for the University of Heidelberg, which thus takes the lead of all the German universities in this matter, although Vienna has been on the point of taking a similar step for some time. The Berlin University advocates including hydrotherapeutics in the course on general medicine, but protests against the creation of a special chair for any subordinate branch of medical training.

Vacancy to be Filled.—The chair of diseases of the eye, ear and throat, at the Medical College of Virginia, made vacant by the death of Professor Charles M. Shields, will be filled at the annual meeting of the board of visitors of the college, April 21. All applications, accompanied by credentials, should be forwarded to Christopher Tompkins, M.D., Dean, Richmond, Va.

Log Cabin Hospital for the Gold Hunters.—At Skaguay, Alaska, sickness and deaths by cerebro spinal meningitis have been the cause of much anxiety. So prevalent has the disease been that it has been spoken of as epidemic by some. A subscription for a hospital was promptly raised and a two-story log house was rented in the latter part of February; in that temporary shelter and in a cabin annex fourteen patients have been under treatment.

Maragliano's Aqueous Extract of Tuberculosis Bacilli has the same biologic and toxic properties as Koch's glycerin tuberculin. It is prepared by boiling the bacilli forty-eight hours in distilled water. A precipitate is obtained by the addition of alcohol, and a dessicated extract by evaporation, which has the same properties as the original extract. The toxic action of each is completely neutralized by the antituberculosis serum. He considers water a better medium than glycerin, for several reasons.—*Gaz. d. Osp. e d. Clin.*, February 1.

Modifications in the Blood Produced by Cold.—Carrière announces that recent investigations demonstrate that the corpuscles of the blood are very much modified by cold, in number, in shape, in histologic reaction, and in their functional activity. They relinquish a large part of their coloring matter and the serum becomes much more toxic than usual. This effect of cold on the blood resembles the effect produced by varnishing the skin and he is inclined to ascribe them to a similar mechanism.—*Bull. de l'Acad. de Méd.*, February 15.

An Appeal to the Men of Ohio; Let the Good Work Go On.—Send in your subscription promptly to the Rush Monument Fund. The object is a worthy one. There should be a representative statue of the American medical profession at the Nation's capital. Fifty cents each from the regular physicians of the State will make Ohio's contribution the welcome sum of over $2500. Don't hesitate to send a small amount. Address at once the chairman of the committee, Dr. William E. Bruner, 514 New England Building, Cleveland.—*Cleveland Medical Journal.*

Practical Therapeutics.—Dr. Frank P. Foster's book in two volumes is reviewed with laudatory criticism in a prominent medical journal of London. The reviewer, among other good points made, says that "with one exception, Dr. Gordon Campbell of Montreal, all the contributors are Americans." Of course the reviewer knows where Montreal is located, but his pen slipped. He must have for the moment regarded America as a synonym for the United States, a territorial vastness that is not to be claimed by the most effusive of Yankees.

The Thyroid Gland in Chronic Icterus.—The necropsy of four cases of icterus from compression of the choledochus by neoplasms, showed a superactivity of the thyroid gland, while nothing of the kind is observed when the liver is not involved. Lindemann explains this superactivity by supposing that the bile and other substances insufficiently disintoxicated by the liver, passing into the circulation, start the other organs with similar disintoxicating functions, to extra exertion to supplement the hepatic insufficiency.—*Virchow's Archiv*, cxlix, 2.

Hermaphroditism a Variety of the Female Sex.—Virchow's experience has convinced him that on the whole, hermaphrodites belong to the female sex. He has never discovered a testicle in any hermaphrodite, although it is a difficult matter to decide exactly the nature of the seminal gland, upon which alone the actual question of the sex depends. There is only one authentic case on record (Obolenski's) in which both testes and ovaries were present.—*Klin. Therap. Woch.*, February 13.

Further Proof of Antitoxin in the Blood of Immunized Animals.—Serum from the blood of an eel is very toxic to certain animals, rabbits, dogs, etc., destroying the red corpuscles *in vivo*. Camus and Gley immunized rabbits against the action of the eel serum by inoculating them with small doses for a week or so, and found that a drop of serum from an immunized rabbit would protect the red corpuscles in a specimen of blood from a non-immunized animal, from the globulicidal action of the eel serum, thus furnishing a direct proof *in vitro* of the presence of an antitoxin in the blood of immunized animals.—*Presse Méd.*, February 12.

"The Archives of the Roentgen Ray."—Under this new name is now known the quarterly journal, of London origin, formerly styled the *Archives of Skiagraphy*. The publishers are the Rebman Company of the Strand, London. In England there exists a society having quite a considerable membership, medical men and others, called the Roentgen Society, which society has adopted this quarterly journal as the place of record for its proceedings. Single numbers are worth about $1 to import, plus the postage, twelve cents. The editors are Dr. W. S. Hedley of the London Hospital, and Sidney Rowland, M.R.C.S., and they have the assistance of an editorial committee, fairly well stocked with medical men.

The Use of Wine at Table.—Last year a book of new verses on diet and allied subjects was put forth by Pope Leo XIII. Regarding the use of wine, the lines of the Pontiff show that he is no extremist, but pursues the golden mean. In the verses beginning, *Apponi in mensas jubeas purissima vina*, his counsel is in effect, "Get only the best for your table; and free from care, soothe and refresh your heart with the grateful beverage, in the company of friends; but in all sobriety trusting not overmuch to it as a restorative."

A Chemic Vaccine for Viper's Venom has been discovered by C. Phisalix, in tyrosin, found in certain plants, especially in the tubers of the dahlia and a mushroom. Two or three cubic centimeters of a hundredth solution will confer immunity to the venom upon a guinea pig after twenty-four hours, lasting frequently for twenty-five days. It has no antitoxic power injected at the same time as the venom, nor any effect as an antidote, but merely acts as a chemic vaccine, the first known example of the cellular juice of a plant possessing immunizing properties in regard to snake poison. The immunizing action of the cholesterin of bile and also of the vegetable cholesterin found in the carrot by Arnaud, has already been noted by Phisalix.—*Presse Méd.*, February 12.

The History of an Article.—We sometimes publish things twice. We recently printed an excellent article prepared by one of the Journal staff, under the title of "*Hypnotism Before the Court*," in the Oct. 16, 1897, issue. The *Medico-Legal Journal* man of New York also thought it was a good article, and he printed it in his *Journal* in December, 1897, but forgot to credit it to this Journal. One of our young men who looks into the exchanges with great care, and has special affection for the *Medico-Legal Journal*, recognized the article at once as being an excellent one, but did not recall that it was one of our own and it went out to the composing room and was published in our issue of March 19, 1898. As this Journal always credits its esteemed contemporaries with whatever it takes from their columns, the article was duly credited to the *Medico-Legal Journal*, so that interesting publication received a valuable advertisement to which it was not entitled, although it has many other excellent features which entitle it to much credit as a rule.

Insanity on the Increase in Philadelphia.—The condition of the insane department of Philadelphia Hospital recently reported by the grand jury is interesting in many ways. According to the report the admissions to this department have increased 35 per cent. within the last ten years, while the proportion of the poor has decreased proportionately to the population and in point of actual numbers. So crowded has this department become that 1400 patients are accommodated in buildings intended for less than 900. In both the male and female departments, additional quarters are being constructed which will only permit of accommodations for 100 or 150 more. Beds have had to be placed in the aisles and passageways, in order to give sleeping facilities. To properly care for all the insane the Board of Charities and Corrections have asked that the districts of Germantown, Frankford and Roxborough be consolidated with Philadelphia.

A Novelist's Tribute to the Medical Profession.—In one of Fargeon's Christmas stories, originally published in *All the Year Round*, that distinguished and admired writer takes occasion to make a most graceful reference to our profession, as follows: "It is my pleasure and duty to here cast in my tribute to this worthy and kind physician, whose life has been and is an honor to the calling of his choice. I can not refrain here from paying a tribute to this kind gentleman, whose life is an honor to the profession he adorns. But, indeed, in what ranks of professional labor can more unselfish kindness be found than in the ranks of those who minister to the sick? Surely there must be some beneficent influence in the work ey do that humanizes and softens the heart, that makes it spond willingly and cheerfully to the appeals of those who ffer? Numberless are the instances that can be adduced of e wonderful goodness of doctors, renowned and eminent, ho sacrifice their time without expectation or desire of return r the inestimable services they render. I have no hesitation saying that, of all arts, it is the most ennobling and beauti- l, and that its record of kind deeds is matchless and unap- oachable. With all my heart I say, 'Heaven bless the doc- rs for the good they do, for the good they are enabled to !' "—*The Sculpel.*

Opinions as to Cause of Death.—The rule as génerally stated is at a medical witness may give his opinion as to the cause of ath. But the supreme court of Kansas makes the very portant suggestion, in Davis vs. Travelers' Insurance Com- any, February, 1898, that the most, if not all, of the cases out which this rule has been collected are those of homicide, in hich an opinion by a medical witness as to the cause of death rely, if ever, involves the principal question submitted to the ry, to wit, the guilt of the accused. In other words, the opinion e expresses in such cases is upon the cause of the death, and ot as to who caused it. Consequently, the supreme court inti- ates, but does not decide, because the question was not prop- rly presented, that a different rule might obtain in cases where e principal fact to be tried is the cause of death, as in many ctions on policies of life insurance. Save in such rare and xceptional cases as admit of no other method of proof, the ourt says, it would seem that opinions, whether by experts or thers, are not admissible upon the ultimate fact to be found. t may also be noticed in this connection that the supreme ourt rather hints that hypothetic questions may be extended o too great length and be burdened with too great prolixity of etail, though the question of length is one very largely in the iscretion of the court trying the case. Hypothetic questions o an expert witness, it further insists, should be based upon he evidence, and should not assume the existence of matters aterial to the formation of a correct opinion, about which no estimony has been given.

Physician as Uninterested Third Party.—It is an elementary rule f law that a stranger to a simple contract, from whom no con- ideration moves, can not sue upon it. But there is an excep- ion to this, which generally obtains in this country, that here a promise is made to one person, upon a sufficient con- ideration, for the benefit of another, the latter may sue the romisor for a breach of his promise. Yet notwithstanding hat, it recognizes this, the supreme court of Arkansas holds, n Thomas Manufacturing Company vs. Prather, Jan. 29, 1898, hat a physician is such a stranger to it that he can not sue on contract made between an employer and employe by which he employer is to furnish the employe medical attendance in ase of accidental injury. Moreover, while the fact that the mploye had called in a certain physician to attend him was nown to the company in whose service he had been injured, nd it had through its officers, fully approved thereof, might, n a suit brought by such employe against the company to ecover of it, under a contract of this kind, the sum which he ad paid his physician, be sufficient to estop the company from enying that it had waived its right to furnish its own physi- ian, provided the company knew that the physician in ques- ion was called in reliance upon its contract to furnish medical ttendance, the supreme court holds that it could not avail the hysician anything in an action brought by him against the ompany.

Three Supposed Cases of Hydrophobia.—Recently three alleged r suspicious cases of hydrophobia occurred in Philadelphia nd were examined thoroughly by both pathologists and bacte- iologists. The first case was that of a lad 16 years of age who as bitten by a dog in September, 1897, and who died in the Presbyterian Hospital six weeks afterward. The attending physician stated that the lad's saliva was frothy at times, and that three days before death the temperature rose to 100 degrees, and the next day 101, being 103 degrees on the day of death. In the second case no definite history had been given, but it was regarded as being suspicious. The third case, an adult male, was bitten by a dog last December and died at the German Hospital in February. The symptoms were frothing at the mouth at sight of liquids, together with spasms and convulsions. The first two cases were thoroughly examined by Dr. A. C. Abbott in the following manner: Sections of the spinal cords were obtained and from these specimens four rabbits were inoculated, two rabbits being inoculated with the supposed virus from the spinal cord in each case. One rabbit died the following morning from the effects of the operation and another died on the twenty-first day from congestion of the brain. The other two rabbits lived and developed no symptoms of hydrophobia. Dr. Cattell, the coroner's physician, made a postmortem in the first case and found that death had resulted from congestion of the brain. In the second instance Dr. Morton, the coroner's physician, after a thorough postmortem stated that death had been due to uremia, and in the third case that death had resulted from the same cause.

The Bladder in Hernias. Fifty-eight cases are on record since 1889 in which the bladder was involved in the hernia, all but one adults. Males, forty-two inguinal and one femoral; females, five inguinal and ten femoral. In only three cases was the involvement of the bladder diagnosed beforehand from disturbances in urination. In thirteen it was discovered during the operation and injury to it thus avoided. On the other hand the bladder was injured in no less that forty cases, in some by cutting, in others by the ligature, etc. The injury was discovered at once in twenty-five cases; in the others not until during the recovery or at the necropsy. In only one case was there an actual intraperitoneal hernia of the tip of the bladder entirely covered with serosa. In the rest the hernia consisted only of a portion of the organ, partially or not at all invested with serosa, but always more or less firmly adherent to the medial side of the hernia sac. In all cases studied the presence of a fatty envelope was noted as characteristic, an actual lipoma in some cases. If it can be detached when adhered to the hernial sac, without injury, the operation can proceed as usual, but if the bladder is injured or if gangrenous, suturing with after-tamponning seems indicated, although in three cases the bladder was sutured, reduced and the hernial wound sutured at once, with perfect success. Eleven cases terminated fatally; four as a direct consequence of the injury to the bladder. Small urinary fistulas have not affected the final success of the operation. In some cases described in detail in *Deu. Ztsch. f. Chir.*, xlv, page 245, twice the bladder was taken for an accessory hernial sac and opened, when the flow of urine announced the error. Another case requiring resection of a gangrenous portion of the peritoneum in a strangulated femoral hernia, was followed by peritonitis. A hole the size of a pencil was found at the necropsy, in the rear wall of the bladder, due to the operation.

A New Form of Operation for the Cure of Inguinal Hernia.—Swift (*New York Med. Jour.*, Oct. 23, 1897, p. 553) recommends the following procedure in the radical treatment of inguinal hernia: An incision is made a little below the level of and about an inch external to the anterior superior iliac spine, extending downward to the pubic spine, parallel with and about half an inch to an inch above Poupart's ligament. This extends to the aponeurosis of the external oblique, which is well exposed. A Kocher's director, or the finger, is passed through the external ring and the canal slit up to the internal ring. As the operation proceeds, all the bleeding should be promptly stopped by dry gauze or ligature when necessary, so as to prevent the staining of the tissues and resulting obscuration of the field of operation. The hernia, if still unreduced, should be returned with or without first opening the sac, as may be required. The sac is now isolated from the cord by blunt dissection. If it can not be readily found, the mass should be held up, the vas deferens found, and while guarding it from injury, a longitudinal incision is made into the mass. This procedure will be found to open up the sac. The finger is then introduced into the sac and well up into the internal ring and a catgut ligature applied around it as high as possible, the finger being withdrawn gradually as the assistant tightens the ligature. The sac should be excised below the ligature. While the cord is held out of the way, three or four (in extreme cases more) sutures should be passed through the transversalis fascia, the conjoined tendon (if necessary also through the rectus abdominalis), the muscular fibers of the transversalis and the internal oblique, and the aponeurosis of the external oblique, on the one side, and about three-eighths of an inch from their edges. The sutures are double-threaded and are passed from within outward. Both free ends of each suture are now passed through the deep parts of Poupart's ligament about half an inch apart, and tied. Care should be observed that the suture next to the cord does not interfere with its circulation. The next step in the procedure consists in overlapping the superficial edge of Poupart's ligament and the lower part of the cut aponeurosis of the external oblique, and sewing the former well up on the anterior surface of the latter muscle. The ligament should be drawn firmly up and the line of sutures not placed so near the edge as to soon tear through. In addition a couple of sutures should finally be placed back of the lost line, which should pass through the overlapping Poupart's ligament and take generous bites of the overlapped structures. The last sutures are placed about midway between the others and serve to hold the flap more securely. When the veins of the cord are enlarged their number may be reduced by Halsted's procedure, and when the cord is otherwise large, some of the redundant tissue may be peeled up. The canal is now obliterated and the cord lies beneath the skin. The suture material consists of catgut hardened in iodoform and alcohol, or in mercuric chlorid and alcohol. Drainage is not provided for, except in operations on large hernias, when a few strands of silkworm gut are inserted. Usually only a few strands of this material are placed under the skin and they are removed at the first dressing. Rest in bed for six weeks or the wearing of a truss for that length of time is further recommended.

The Alleged "Boycott" of the British Army Surgical Department.—The London *Practitioner* points out that it is an error to say that the medical profession of that country has declared a boycott against the Army Surgical service, and that if any such act has been committed it can be found in the systematic slight and ignominies that have been put upon the medical corps by bureaucratic officials. When military rank shall have been accorded to the surgeon, says the *Practitioner* the government may expect to get something better than "the refuse of the profession" for the Army Surgical Department, but not before. The contumelious treatment of that department has been so prolonged and emphatic that the wonder is that the surgical *personnel* is as good as it is. The *Practitioner* says: "The complaint about the boycotting of the army by the doctors, which has been recently made in Parliament and in certain newspapers, are to the last degree disingenuous. The army, as represented by its combatant officers, seems to take a special pleasure in boycotting the doctors, and it is surely not to be wondered at that doctors who have any regard for their own dignity should not care to expose themselves to such treatment. As things are, the army for the most part gets the mere refuse of the profession, and it will never get anything else while the present system of official snubbing of medical officers on every possible occasion, and of treating them as in a military sense 'camp followers,' and socially as unfit to come between the wind and the combatant's nobility, is allowed to continue. Till the army doctor is given military rank with its full privileges and is recognized not merely *de jure*, but *de facto*, as an officer and a gentleman, and treated as such, it is the duty of the teachers in the medical schools and of every member of the profession who is in a position of influence, to recommend young medical men not to enter the Army Medical Department. Why one of the leading medical journals should be so vehement in denying that this is an 'Army medical boycott' is not clear. The name given to the process, however, matters nothing. Let us call it 'abstention' if that sounds better. The important thing is to get youngsters to 'abstain' from putting on the livery of degrading servitude into which the War Office has transformed the Queen's uniform as far as doctors are concerned."

Loss of Life by So-called "Hunting Accidents;" Legislation for its Prevention.—A bill has been presented to the legislature of Maine to establish a penal clause against those men with guns who "accidentally" wound or kill their fellow-men in the woods. This measure has been prompted by the unfortunately large number of fatalities which have occurred during the past season and the fall of 1897. If it becomes a law it is believed that the measure will operate as a means of saving human life. It is claimed that the hunters who wound or kill persons are mostly novices, who become excited and blaze away at any moving object they may see. It is proposed to put up notices of the law at all points where sportsmen enter the woods, at the various camps, railway stations, etc. Three so-called "hunting accidents" occurred in Maine almost as soon, in 1897, as "the law was off" deer. These were fatalities, while the number wounded but not killed was much larger. In Vermont a similar unfortunate record was made. Such results can but be set down as due to gross carelessness, although beyond question the shootings were not intentional. The average inexperienced hunter is so anxious not to return to his fellows from his hunting trip empty-handed that it is easy to understand his overzeal, but these mistakes have occurred so frequently that they should have been, and should be made to be, an effective warning. The number of cases may have been lessened through these sad experiences below the number they might have attained to had not a very wide publicity been given to each.

North Carolina Medical Law Constitutional.—Sections 3122 and 3132 of the Code of North Carolina, as amended by Acts 1885, chapters 117 and 261, by Acts 1889, chapter 181, sections 4 and 5, and by Acts 1891, chapter 420, relating to the examination and certification of persons desiring to practice medicine in that State, the supreme court of North Carolina hold, does not offend the provisions of the State constitution, which forbid exclusive privileges and emoluments to any set of men and prohibit monopolies and perpetuities. Nor does it consider that there is any infringement on the constitution of the United States, which prohibits any State to deny any person the equal protection of the laws. Moreover, it does not agree with the contention that the statute is unconstitutional on the additional ground that it exempts from its requirements those physicians who were already practicing medicine and surgery in North Carolina on March 7, 1885. The supreme court says, Dec. 23, 1897, case of State vs. Call, that the first statute, making it indictable to practice medicine and surgery without an examination by the State Board of Medical Examiners, and a license therefrom was enacted at the session of 1885, and was made prospective, so as to apply only to those who should begin the practice of medicine and surgery thereafter. This, it declares, was not unreasonable. It was fair, it somewhat tartly continues, to assume that those already in the practice, many of whom had grown gray in the service of humanity and the alleviation of suffering, had already received that public approbation which was a sufficient guaranty of their competency, and should not be needlessly subjected to the humiliation of an examination by the side of beardless boys, who had not yet swung a scalpel, or prescribed a purgative, save under supervision; while those already in practice, who had proved incompetent, it might be assumed had been equally stamped with public disapproval at the cost to the public of much bitter experience, an expensive and dangerous process of distinguishing the two classes, to save the public from which, in future, was the object of the new regulation requiring examination and license by a board of competent examiners.

Louisville.

State Board of Health.—There is a contention in the State Board of Health which bids fair to grow quite warm before long. The terms of Dr. J. M. Mathews, the present President and Dr. J. O. McReynolds, having expired, the Governor re-appointed Dr. Mathews, and in place of Dr. McReynolds appointed Dr. W. S. O'Neal of Lancaster. Dr. J. B. Kinnaird of Lancaster, an appointee of the Governor on the Board resigned his position in order to become a candidate for the Secretaryship to succeed Dr. J. N. McCormack of Bowling Green. The Secretary is elected each year by the Board and is not considered a member of the Board in the true sense of the word. In Dr. Kinnaird's place the Governor appointed Dr. Fulton. On account of the untiring zeal of the present Secretary, Dr. McCormack, in ridding the State of the quacks and in getting the bill preventing the practicing of osteopaths in the State, passed by the Legislature, Dr. McCormack has made a number of enemies, both in and out of the profession, and they are using every effort to make the race for the Secretaryship a heated one, bringing it down to a level with politics. It is understood that all of the appointees of the Governor at the present time are pledged to vote for Dr. Kinnaird for Secretary, with the exception of Dr. Mathews. A majority of the Board as now constituted are appointees of the present Governor and there is a possibility of the plan to defeat Dr. McCormack being successful.

Jennie Casseday Infirmary.—This institution, which since April, 1892, has been maintained by the "King's Daughters" of the city has just been sold to Dr. Lewis S. McMurtry, the purchase price being $15,000. On the above date the institution was first started, Dr. McMurtry being elected surgeon in chief with the following staff: Consulting physicians, Wm. Bailey, Thomas H. Stucky; consulting surgeons, J. M. Mathews, Geo. W. Griffiths. Since that time the institution has done remarkably well, but the King's Daughters were unable to meet the maturing notes with the interest, consequently the sale above mentioned was consummated. It will be run as a private infirmary by Dr. McMurtry.

Smallpox.—The situation at Middlesboro continues grave, especially as complications have arisen in regard to authority, State or Federal. The Governor and President of the State Board of Health were notified that there were 70 cases of smallpox and 400 suspects in the city and not a cent to meet current expenses. The funds of the State Board are exhausted and to meet the emergency, the Governor sent an emergency message to both branches of the legislature, sitting its last day of the session, urging the necessity of an appropriation for the purpose of stamping out the disease, but none was passed. Realizing that the funds were not available from the State, and no possibility of the town or county raising the money, with the consent of the Governor the State Board wired Washington, asking for assistance. In response to this, Passed Assistant Surgeon Wartenbaker was dispatched to the scene at once. For two days there was a conflict of authority but this was amicably settled and the Federal and State authorities are now working in harmony. A stricter quarantine is being enforced, and the isolation and detention hospitals will be moved to the far outskirts of the town. More money is now available from private subscriptions. Drs. J. M. Mathews, Wm. Bailey and J. N. McCormack went to the scene of the epidemic last week to investigate the situation in person. Two cases of smallpox are reported at Richmond, Ky.

Legislation.—The Governor has signed the "osteopathy" bill which requires these quacks to comply with the law governing the practice of medicine in the State previously referred to in these columns. The bill governing the practice of dentistry was vetoed.

Indictment.—The following physicians of Covington were indicted by the grand jury of Kenton County for failing to comply with the State law requiring medical practitioners to register at the office of the county clerk: Robert Furnam, John E. Stevenson, Charles E. Ellis, B. F. Laird, R. H. Crisler, F. D. Crigler, A. W. Devoss, Wm. L. N. Armstrong. They will combine and test the constitutionality of the law in the court.

Cholera Vaccine Company.—Articles of incorporation of a company by this name have just been filed at Frankfort, with the Secretary of State. The capital is $10,000. Two of the incorporators are Dr. Frank Eisenman, State Veterinarian, and Dr. John E. Cashin, State Bacteriologist. The object of the corporation is to manufacture and sell a vaccine against cholera in animals.

Detroit.

At the Regular Meeting of the Detroit Medical and Library Association March 14, Dr. J. V. Becelaere read a paper on "Professional Secrecy," in which the author outlined the legal conception of the subject, confining his remarks to the definition of professional secrecy as given by the courts of the different States in the Union.

At the Regular Meeting of the Wayne County Medical Society March 17, Dr. E. V. Riker read a paper on "Non-penetrating Injuries of the Eye." Dr. R. W. Gillman followed with a paper on "Penetrating Injuries of the Eye and Foreign Bodies." The Doctor said that the fear of sympathetic ophthalmia has influenced surgeons to sacrifice seemingly slightly wounded eyes. The Doctor is not in favor of immediate enucleation of the eye in this class of cases, but insists on the necessity of keeping the patients under close observation for some time, when, by the extent of the inflammatory reaction, the best way of dealing with the case can be determined. He reported a remarkable recovery to normal vision of an eye that was apparently destroyed in October, 1892, by a chip of steel from a hammer, which pierced the right cornea at the temporal side of the sclerocorneal junction, making a rent in the iris and passing back into the vitreous. The Doctor made three attempts with different-sized tips of a Hirschberg magnet forty-eight hours after the accident to remove the steel, but without success. In the manipulations the vitreous had been pretty thoroughly stirred up without any after-disturbance whatever. The eye healed and at the present time, six and a half years after the injury, the vision of the injured eye is $^{20}/_{30}$. The patient was presented to the Society and examined by the members present. In the fundus of the affected eye, a few mm. to the outer side of the macular region, is a deep fissure involving the retina, choroid and sclera. In the central part of this, which shows as a white patch, a pointed, bluish-gray object projects anteriorly and downward into the vitreous. This object is undoubtedly the sliver of steel that was projected into the patient's eye at the time of the accident. The object has almost the exact appearance of a cysticercus. Dr. Don M. Campbell read a paper on the subject of "Mules' Operation," outlining the technique of the operation and discussing its merits and its superiority over enucleation. Dr. J. H. Sanderson discussed the subject of "Tinnitus Aurium."

Health Report for the week ending March 19: Total births 83; males 41, females 42; total deaths 81; under 5 years 33.

Cincinnati.

The Mortality Report for the week shows: Zymotic diseases, 11; phthisis, 19; other constitutional, 9; local, 76; developmental, 8; violence, 4; still-births, 13; total 127; annual rate per 1000, 16.30; under one year, 18; between one and five, 14; preceding week, 107; corresponding week, 1897, 138; 1896, 126; 1895, 133.

The Organization of the medical corps to look after the veterans in attendance at the coming annual encampment of the G. A. R. is announced as having been divided into eight sections as follows: Medical director, Dr. J. C. Culbertson; camp under medical inspector Byron Stanton; school buildings under medical inspector A. B. Isham and deputy inspector A. B. Birchard; Grand Central and C. H. D. railway depots under deputy inspector M. E. Bloyer; Pennsylvania and Northern railway depots under deputy inspector J. M. Crawford; emergency corps under deputy inspector J. G. Hyndman; ambulance corps under deputy inspector L. C. Carr. The entire corps is to be uniformed at their own expense and all services rendered are to be gratuitous. The commissions are to be issued by the citizens' committee.

Dr. Charles H. Myers has been appointed district physician to succeed Dr. J. E. Stephan.

Dr. E. Gustav Zinke will deliver a lecture at the Odeon March 23, on Nansen's "Successful Expedition to the North Pole." The proceeds are to go to the German Deaconess' Home and Hospital.

Societies.

The following meetings are noted:

Illinois.—Chicago Medical Society, March 16 and 23; St. Clair County Medical Society, Belleville, March 11; Vermilion County Medical Society, Danville, March 8.

Missouri.—Lafayette County Medical Society, Higginsville, March 8; Medical Society of City Hospital Alumni, St. Louis, March 17.

New York.—Albany County Medical Society, Albany, March 16; Binghampton Academy of Medicine, March 15; Medical Society of Newburg Bay, Newburg, March 8; Onondaga Medical Society, Syracuse, March 15; Rensselaer County Medical Society, Troy, March 8.

Ohio.—Cleveland Medical Society, March 11; Lorain County Medical Society, Lorain, March 13.

Pennsylvania.—Delaware County Medical Society, Chester, March 10; Lebanon County Medical Society, Lebanon, March 8.

CHANGE OF ADDRESS.

Barber, W. M., from Scio, Ohio, to North Liberty, Pa.; Blackburn, R. S., from Keokuk, Iowa, to Breeds, Ill.

Clark, I. S., from Keokuk, Iowa, to Dexter, Mo.; Caspers, P., from 356 W. Division St., to 2107 Michigan Ave., Chicago, Ill.; Creswell, G. W., from 86 Spruce St., to 8 DeKalb St., Chicago, Ill.

Guerard, A. R., from 2148 7th Ave., to 2041 7th Ave., New York, N. Y.

Heielbower, R. C., from 7th and Elm to Groton Building, Cincinnati, Ohio.

Murrell, T. E., from Tuscon, Ariz. Ter., to 2224 E. 14th Ave., Denver, Colo.

Paine, H. M., from Atlanta, Ga., to Glens Falls, N. Y.; Peabody, C. H., from Toledo, Ohio, to Mulliken, Mich.

Risjord, J. N., from Keokuk, Iowa, to Horeb, Wis.

Sargent, A., from Frankfort to Hopkinsville, Ky.; Shortridge, W. R., from Keokuk, Iowa, to Hopkinton, Iowa; Straley, S. B., from Pasadena, Cal., to Huntsville, N. J.; Shollenberger, C. F., from 2909 Larimer St., to 2301 Larimer St., Denver, Colo.; Starr, J. M., from Chariton to Lacona, Iowa; Stringfield, C. P., from 300 31st St., to 138 Jackson Boul., Chicago, Ill.; Slagle, C. D., from Portsmouth, Ohio, to Box 114, Pomona, Cal.; Sullivan, T. J., from 4729 Ashland Ave., to 4709 Michigan Ave., Chicago, Ill.

Weaver, W. H., from 126 State to 92 State, Chicago, Ill.; Wagner, H. E., from Ashland and Milwaukee Aves., to 551 Armitage Ave., Chicago, Ill.; Warner, A. L., from Hospital to Penfield, Ill.

Yates, H. W., from 1411 Fort St., W., to St. Luke's Hospital, Detroit, Mich.

LETTERS RECEIVED.

Alta Pharmacal Co., St. Louis, Mo.; Alkire & Clarke (Drs.), Topeka, Kan.; Abbott, E. H., Elgin, Ill.; Andrews, D. B., Elyria, Ohio.

Berry, W. F., Mt. Clemens, Mich.; Beattie, D. A., Santa Clara, Cal.; Bremer, L., St. Louis, Mo.; Brown Hotel Company, The, Denver, Colo.; Brown, Mark A., Cincinnati, Ohio; Brown, R. W., Glenwood, Wis.; Buison, A. E., Jackson, Mich.; Burrows Bros. Co., The, Cleveland, Ohio; Burnham-Hall-Chase Co., Boston, Mass.

Care, J. R., Worcester, Pa.; Capp, S. B., Devon, Pa.; Campbell, E. R., Bellows Falls, Vt.; Cokenower, J. W., Des Moines, Iowa; Crothers, T. D., Hartford, Conn.; Cutter, E., New York, N. Y.

Drury, A. G., Cincinnati, Ohio.

Egan, J. A., Springfield, Ill.; Elliott, H. G., New York, N. Y.

Ferguson, J. A., New York, N. Y.; Fisk, F. F., Waterloo, Ind.; Frederick Co., Purdue, New York, N. Y.

Gibbon, John H., Philadelphia, Pa.; Gilchrist, T. C., Baltimore, Md.; Gundrum, F., Sacramento, Cal.

Hallberg, C. S., Chicago, Ill.; Hessler, Robert, Indianapolis, Ind.; Hewitt, J. M., Galesburg, Ill.; Howard, A. B., Cuyahoga Falls, Ohio.

Imperial Granum Co., New Haven, Conn.

Jones, E. C., Philadelphia, Pa.

Klein, W. L., Minneapolis, Minn.; Knox, A. W., Raleigh, N. C.; Krans, J. M., Buffalo, N. Y.

Lanphear, Emory, St. Louis, Mo.; Laplace, Ernest, Philadelphia, Pa.; Leiter, Frances W., Mansfield, Ohio; Lehn & Fink, New York, N. Y.; Lord & Thomas, Chicago, Ill.; Loveland, B. C., Clifton Springs, N. Y.

Mogk, Wm. A., Ann Arbor, Mich.; Millican, Kenneth W., St. Louis, Mo.; Mettler, L. Harrison, Chicago, Ill.; Mays, Thomas J., Philadelphia, Pa.; Munn & Co., New York, N. Y.; Moore, W. H., Brockport, N. Y.; Matthews, D. J., Zanesville, Ohio; Marchand, Chas., New York, N. Y.; Mulford & Co., H. K., Philadelphia, Pa.

Naylor, H. L., Pikesville P. O., Md.

Parke, Davis & Co., Detroit, Mich.; Peabody, C. H., Milliken, Mich.; Phenique Chemical Co., (2) St. Louis, Mo.; Pothier, O. L., New Orleans.

Reed, C. A. L., Cincinnati, Ohio; Rosenberger, J. L., Chicago, Ill.; Rogers, J. T., Suit, N. C.; Ricker, S. J., Aurora, Ill.

Scott & Bowne, New York, N. Y.; Shields, W. J., New Wilmington, Pa.; Smith, H. S., Detroit, Mich.; Smith, Kline & French Co., Philadelphia, Pa.; Steele, Robert E., Beaver City, Utah; Stuver, E., Rawlins, Wyo.

Voje, J. H., Oconomowoc, Wis.

Ward, J. A., Dubuque, Iowa; White, F., Elwyn, Pa.; Woldert, E. A., (2) Philadelphia, Pa.; Woodbury, Frank, Philadelphia, Pa.; Wocher, Max & Son, Cincinnati, Ohio; Wyckoff, R. M., Brooklyn, N. Y.

Yates, H. W., Detroit, Mich.

PAMPHLETS RECEIVED.

Annual Address to the Missouri State Medical Association. By J. H. Duncan, St. Louis. Paper. Pp. 16.

Authors and the Journals; Clinical Tests of New Remedies. By S. S. Bishop, Chicago. Illustrated. Reprints from the Laryngoscope.

Boils, Carbuncles and Felons, Notes on Non-Surgical Treatment of. By L. Duncan Bulkley, New York City. Reprinted from New York Medical Journal.

Constitution of the United States of the World. By C. S. Welles, London. Paper. Pp. 8.

Coroner's Inquest a Medieval Relic, The. By S. W. Abbott, Boston. Reprinted from Philadelphia Medical Journal.

Catarrhs of the Gastro-Intestinal Tract, Diet in; A Plea for More Frequent Resort to Analysis of the Stomach Contents for Diagnostic Purposes; Massage of the Abdomen. By Boardman Reed, Philadelphia. Reprints.

Diastatic Preparations, Note on. By W. G. Tucker, Albany, N. Y. Reprinted from Albany Medical Annals.

Epiphora, or Watery Eye . .; Implantation for a Glass Ball for the Support of an Artificial Eye and Mules' Operation for the Substitution of Enucleation of an Eyeball; New Ophthalmic Operating Table; Ophthalmia Neonatorum. By L. Webster Fox, Philadelphia. Reprints.

Equitable Protection, Debate on. Issued by N. E. Free Trade League, Boston. Paper.

Gastritis (Phlegmonous) Following Ulcus Carcinomatosum of the Pylorus. By J. C. Hemmeter and Delano Ames, Baltimore. Illustrated. Reprinted from Medical Record.

Gonorrhea, Rapid Cure of; Protection of the Innocent from Gonorrhea; Urethroscopy in Chronic Urethritis; When May Gonorrheal Patients Marry? By F. C. Valentine, New York City. Reprints.

How Can We Prevent the Slaughter of the Innocents? By E. Stuver, Rawlins, Wyo. Reprinted from Charlotte Medical Journal.

Hysterical Dysphagia, A Case of. By Llewellyn Eliot, Washington, D. C. Reprinted from Medicine.

Infants, Recommendations in Regard to the Care of. Pennsylvania State Board of Health, Circular No. 24.

Inguinal Hernia in the Male, The Cure of; Cure of Vesico-Vaginal Fistula by the Free Dissection of the Bladder from its Vaginal Attachments and Closure with the Buried Continuous Suture; Intestinal Obstruction After Laparotomy; Personal Service as the Especial Exponent of a Great Profession. By H. O. Marcy, Boston. Reprints.

Protest Against Adoption of Senate Bill No. 2680, by the Board of Health of San Francisco.

Protest Against the Passage of Senate Bill No. 1063; Memorial of William H. Welch. Senate Document No. 104, 55th Congress, Second Session.

Report of City Board of Health of Terre Haute, Ind., for 1895. Paper. Pp. 20.

Report of City Board of Health of Terre Haute, Ind., for 1897. Paper. Pp. 26.

Report of the Board of Health of Memphis, Tenn., for 1897. Paper. Pp. 50.

Salt Theory or Hypothesis of Disease, The. By J. D. Poindexter, Ft. Hamilton, New York Harbor. Paper. Pp. 6.

State and Federal Quarantine Powers. By Edgar H. Farrar, New Orleans. Paper. Pp. 27.

Syme, Personal Reminiscences of. By Donald Maclean. Illustrated. Reprinted from the Medical Age.

Trachoma, The Treatment of the Malposition of the Lid Border in. By F. C. Hotz, Chicago. Reprinted from Journal American Medical Association.

Tuberculosis and the Public Health. By Geo. Lane Mullins, Sydney, N. S. W. Paper. Pp. 23.

Tubercular Peritonitis, Surgical Treatment of. By J. P. Creveling, Auburn, N. Y. Reprinted from Buffalo Medical Journal.

Typhoid Fever. By J. E. Woodbridge, Cleveland, Ohio. Paper. Pp. 60.

THE PUBLIC SERVICES.

Army Changes. Official List of Changes in the Stations and duties of officers serving in the Medical Department, U. S. Army, from March 12 to 18, 1898.

Major Joseph B. Girard, Surgeon (Jefferson Bks., Mo.), is granted leave of absence for three months, to take effect on or about April 1, 1898.

Capt. Madison M. Brewer, Asst. Surgeon, is granted leave of absence for one month on surgeon's certificate of disability, to take effect upon the expiration of the ordinary leave of absence.

First Lieut. Thomas S. Bratton, Asst. Surgeon, the order assigning him to Ft. Leavenworth, Kan., is revoked, and he is relieved from duty at Ft. Niobrara, Neb., and ordered to Tybee Island, Ga., for duty.

Capt. Francis J. Ives, Asst. Surgeon, is relieved from duty at St. Francis Bks., Fla., and ordered to Ft. Wingate, N. M., to relieve Capt. Adrian S. Polhemus, Asst. Surgeon. Capt. Polhemus, upon being so relieved, is ordered to Ft. Columbus, N. Y.

Capt. William E. Purviance, Asst. Surgeon, is relieved from duty at Ft. Columbus, N. Y., and ordered to Ft. Morgan, Ala.

Capt. Allen M. Smith, Asst. Surgeon, will be relieved from duty at Ft. Reno, Oklahoma Ter., upon the arrival there of First Lieut. Henry A. Webber, Asst. Surgeon, and ordered to Ft. Hamilton, N. Y.

First Lieut. James S. Wilson, Asst. Surgeon, is relieved from duty at Ft. Clark, Texas, and ordered to Ft. Caswell, N. C.

Navy Changes. Changes in the Medical Corps of the U. S. Navy for the two weeks ending March 19, 1898.

Surgeon L. B. Baldwin, detached from the "Puritan" March 17, and ordered home with two months' leave.

Surgeon J. D. Gatewood, detached from duty at the naval museum of hygiene, Washington, D. C., March 15, and ordered to the "Puritan" March 17.

Asst. Surgeon C. D. Kindleberger, detached from the "Olympia" and ordered home with two months' leave.

Surgeon N. H. Drake, detached from duty with the "Minneapolis" and "Columbia" and ordered to the "Minneapolis" March 15.

Surgeon C. G. Herndon, ordered to the "Columbia" March 15.

Medical Inspector W. S. Dixon, detached from the "Brooklyn" and ordered at once to the hospital at Norfolk, Va., for treatment.

Medical Inspector P. Fitzsimons, detached from duty as a member of the board of inspection and survey, Washington, and ordered to the "Brooklyn."

Surgeon J. E. Gardner, ordered to the "Dolphin" March 24.

P. A. Surgeon T. W. Richards, detached from the New York navy yard and ordered to the "Machias" March 22.

P. A. Surgeon M. R. Pigott, detached from the "Machias" March 22, proceed home and wait orders.

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